GANZ

H.264 Network Camera/ Encoder series

Webpage User Manual

IMPORTANT!
All of GANZ network camera and encoder series are using same webpage interfaces but some pages are designed only for a specific model. The explanation and captured images at this manual are mainly on the basis of ZN-S1000VE, 1ch network video encoder. If you are using the GANZ encoder or GANZ network camera models other than ZN-S1000VE, please do not miss the additional notes at the *Section '**6. REFERENCE TO MODELS**'* of this manual.

Table of Contents

WHAT'S NEW **4**
1. INTRODUCTION **6**
1.1. Welcome **6**
1.2. Getting Started **6**
1.3. IP address setting **6**
2. USING A WEB BROWSER **9**
2.1. ActiveX Installation (AxNVC.cab) **9**
2.2. Recommended PC specification **10**
3. MAIN PAGE CONFIGURATION **11**
3.1. View page **11**
4. SETUP CONFIGURATION **15**
4.1. LOG IN **15**
4.2. BASIC CONFIGURATION **16**
4.2.1. User management 16
4.2.2. Configuration of HTTP and HTTPS 20
4.2.3. Setting date and time of system 21
4.3. VIDEO & AUDIO **23**
4.3.1. Video input (channel naming/video format/ color control) 23
4.3.2. Inserting Burnt-in Text on the image 25
4.3.3. Codec (video codec, resolution, FPS, Bit rate control) 27
4.3.4. Audio (listening, speaking) 29
4.3.5. Snapshot 31
4.4. EVENT CONFIGURATION **33**
4.4.1. How to configure each event server 34
4.4.2. Assigning event rule to event publishers 37
4.5. SYSTEM OPTION **39**
4.5.1. Setting TCP/IP (DHCP, Static IP, DNS setting) 39
4.5.2. NAT setting (Port mapping) 41
4.5.3. Setting NTP server 42
4.5.4. Setting property for UPnP 43
4.5.5. USB/SD Storage 45
4.5.6. USB Wireless LAN 47
4.5.7. RTSP/RTP (multicast or unicast) 50

4.5.8. Setting property for mDNS (Multicast DNS) 54
4.5.9. Setting SMTP 55
4.5.10. Recording & Playback with USB/SD storage 57
4.5.11. LED Setting 61
4.5.12. DDNS (Dynamic DNS) 63
4.6. IO CONFIGURATION 64
4.6.1. DI/DO control 64
4.6.2. UART setting for serial device 66
4.7. MAINTENANCE 69
4.7.1. Firmware Update port setting 69
4.7.2. Getting system Log 70
4.7.3. Webpage option for VCA 71
4.8. VCA 72
4.9. MOTION DETECTION 72
4.10. ABOUT 74
4.10.1. Version 74
4.10.2. Licenses 74
5. SAFETY MODE 75
5.1. What is Safety Mode? 75
5.2. Why your GANZ encoder and network camera system boots in Safety Mode? 75
5.3. How to recover your system from Safety Mode? 75
5.4. Limited functions under Safety Mode 76
6. REFERENCE TO MODELS 77
6.1. ZN-S100V 77
6.2. ZN-RS4000 SERIES 78
6.3. Rack for GANZ encoder 79
6.4. ZN-D100VE 80
6.5. ZN-CS series H.264 Network camera 83
6.6. ZN-DT350 series H.264 Network dome camera 87

WHAT'S NEW

K00.99.03
[View] : Check box of OSD is removed
[Date&Time] : Additional comment(NTP default setting) is added
[Video Out] : Removed
[RTSP/RTP] : 'Include meta stream' is added
[AVI File Recorder] : Secondary stream recoding(MJPEG) is added
[LED] : LED configuration is added for the event subscribing
[System Log] : The system log configuration is added

K00.99.05
[System Log] : The configuration page is modified (No more options for number of file)
[User] : User Authentication is modified

K00.99.08
[VCA] : Configuration page deleted
[Codec] : Q value for VBR mode is added
[View page] : Description of OSD and burnt-in text added

K00.99.14
[VCA] : Configuration page inserted (Enabled only with license)
[NAT] : NAT page for port mapping is added
[DDNS] : Dynamic DNS is added
[UART] : Serial Over IP setting is added
[LED] : The number of LED has reduced from 4 to 2.
[AVI File Recorder] : Storage recycling option added
[AVI File Recorder] : Recording segmentation option added
[Webpage] : VIEW option for Video Contents Analysis stream is added

K1.00.04
[Video-in] : Options for software deinterlace added

K1.00.07
[UART] : UART setting page updated per model
[RTSP/RTP] : NAL unit option is added
[RTSP/RTP] : Authentication option is added
[LED] : LED option for Heart beat is added
[TCP/IP] : Domain name for DNS configuration is not supported

K1.02.01
[SMTP] : Authentication for login is deleted
[SMTP] : SSL and TLS encryption is added
[Rack for GANZ encoder] : Rack information for multi channel solution is added
[Event Configuration] : HTTP server is added for event notifying server
[Event Configuration] : FTP server is added for event notifying server
[VCA] : Recording by VCA event triggering is added
[ZN-DT350SERIES H.264 NETWORK DOME CAMERA] : IR Cut filter control page is deleted

[LED] : ‘VCA’ is removed from the list of event publisher
[UART] : SerialOverIP added more explanation

1. INTRODUCTION

1.1. Welcome

This manual explains how to interface with the GANZ ENCODER AND NETWORK CAMERA series using a standard Web browser (for example Microsoft Internet Explorer).The Web Page of the GANZ ENCODER AND NETWORK CAMERA is implemented with protocols below.

- HTTP API – Parameter configuration commands
- RTP/RTSP – Video, Audio, and Metadata Streaming
- Active X program – Image display on client PC

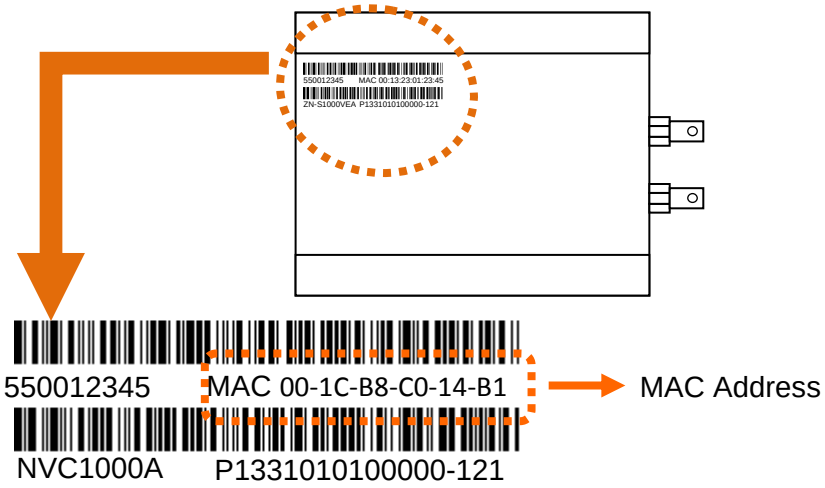
NOTE:
This manual is generated based on ZN-S1000VE, 1ch network video encoder. For all of GANZ encoder and network camera, most of the user interfaces of web page can be applied equally. But, inevitably some parts have been designed otherwise than ZN-S1000VE according to the characteristics of each model. For this reason, you should also refer to the section 6. REFERENCE TO MODELS if you're using multi channel solution or network camera type.

1.2. Getting Started

You will need to install your GANZ ENCODER AND NETWORK CAMERA series before using this manual. Refer to the GANZ ENCODER Hardware Manual supplied with the SDK. Once installed, apply power to the system and refer to the 'Installation Guide' or 'Hardware manual' for each model for more detail installation guide.

1.3. IP address setting

How to find the IP Address of your device:
You can figure out the default IP address of your product from MAC address. If you have succeeded in converting the IP address like the picture below, just type the address on the address bar of the Internet Explorer.

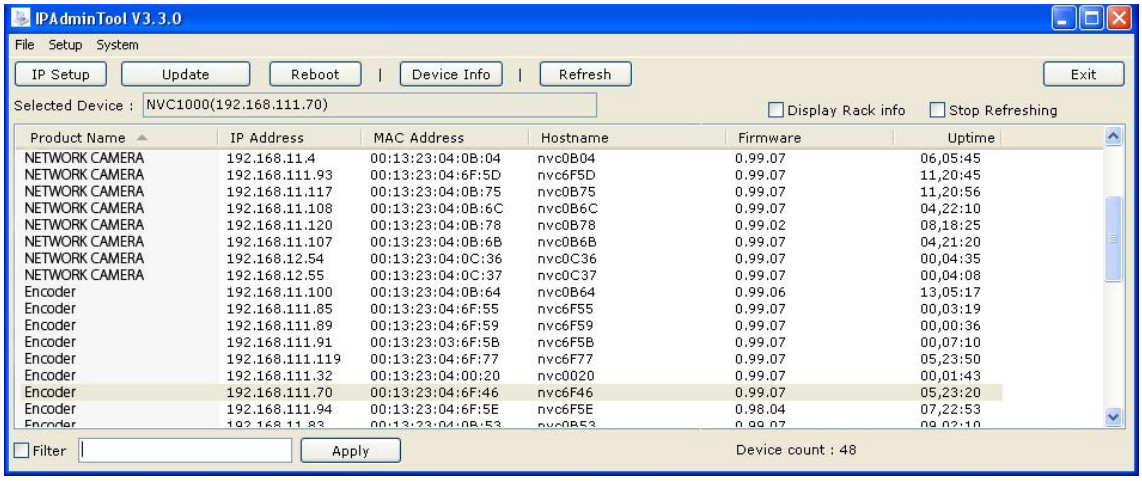


MAC address = 00-1C-B8-C0-14-B1 → IP address = 192.168.35.69

Convert the Hexadecimal number to Decimal number

How to change the default IP address:

You can use *ZNS-GIT IPAdimn Tool* software. It enables you to search and change the IP address of the device. Below is the example picture of ZNS-GIT IPAdimn Tool. Multiple GANZ ENCODER AND NETWORK CAMERA models are searched by the ZNS-GIT IPAdimn Tool.



What is ZNS-GIT IPAdimn Tool?

ZNS-GIT IPAdimn Tool helps you to search all of GANZ ENCODER AND NETWORK CAMERA series on the network automatically and shows the product name, IP address, MAC address

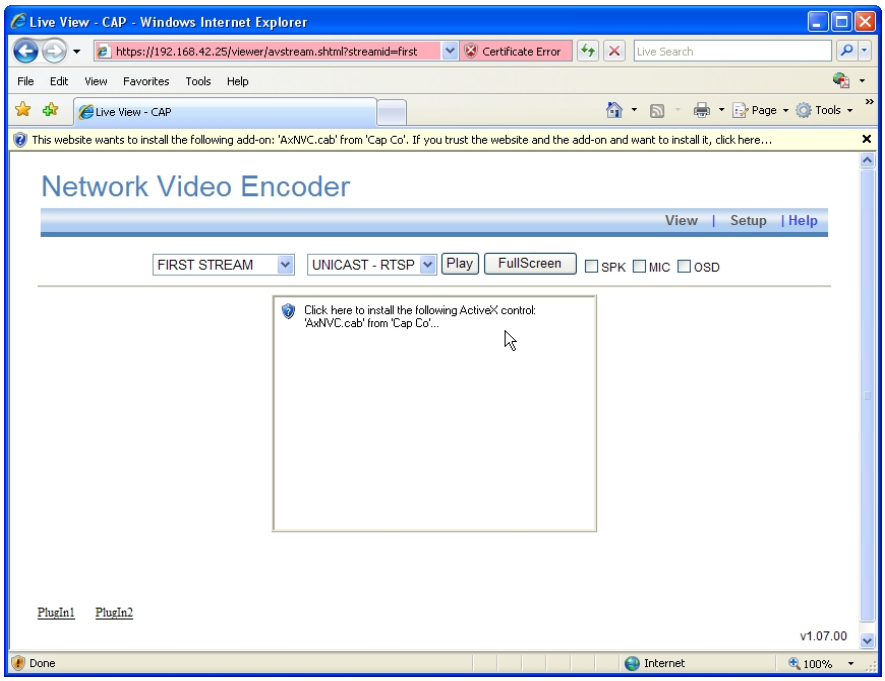
and firmware information etc. It also enables you to change the IP address or update the firmware. Please be fully understood about other functions and the features of *ZNS-GIT IPAdimn Tool* because the utility is essential for you to administrate the GANZ ENCODER AND NETWORK CAMERA series easily.

2. USING A WEB BROWSER

Once the Ethernet connection has been established, you have the following possibilities to see the first image of the camera. But if it is the first time for you to access the webpage of GANZ ENCODER AND NETWORK CAMERA series, you may face the ActiveX installation message.

2.1. ActiveX Installation (AxNVC.cab)

Click “pop-up blocked” and install the Active X control as below. You need to install ActiveX for displaying the images.



Internet Explorer - Security Warning
Do you want to install this software?
Name: AxNVC.cab
Publisher: Cap Co
More options
Install
Don't Install
While files from the Internet can be useful, this file type can potentially harm your computer. Only install software from publishers you trust. What's the risk?

Note

If you have failed to install ActiveX, please follow the next step.

Delete “AxNVC” in “C:\WINDOWS\Downloaded Program Files” and connect again to Web Page with ZNS-GIT IPAdimn Tool or direct typing so that Active X installer can be downloaded again.
Or you can upload ActiveX (UMC.cab) manually with ZNS-GIT IPAdimn Tool, the IP management utility.

2.2. Recommended PC specification

The following is the minimum and recommended PC system requirement to use a Web browser with the GANZ ENCODER AND NETWORK CAMERA series.

	Minimal	Recommended
Mainboard/Chipset	Intel 865	Intel 945P
CPU	P4 3.0GHz	Intel Core2Duo E4300
RAM	512MB	1GB
VGA	D3D support	D3D support
	Nvidia, ATI, Intel built-in graphic	ATI Radeon Series, Nvidia Geforce Series
	Memory : 64 MB	Memory : 128 MB
OS	Win 98, ME, 2000, XP, Vista	Windows XP SP2 or higher
Direct X	9.0	9.0

3. MAIN PAGE CONFIGURATION

3.1. View page

If you have succeeded in accessing the webpage and installed the Active X without any problem, you can find the view page of camera.

If you are asked to type the ID and Password, you can enter the default Administrator account (case-sensitive)

ID : *root*
Password : *pass*

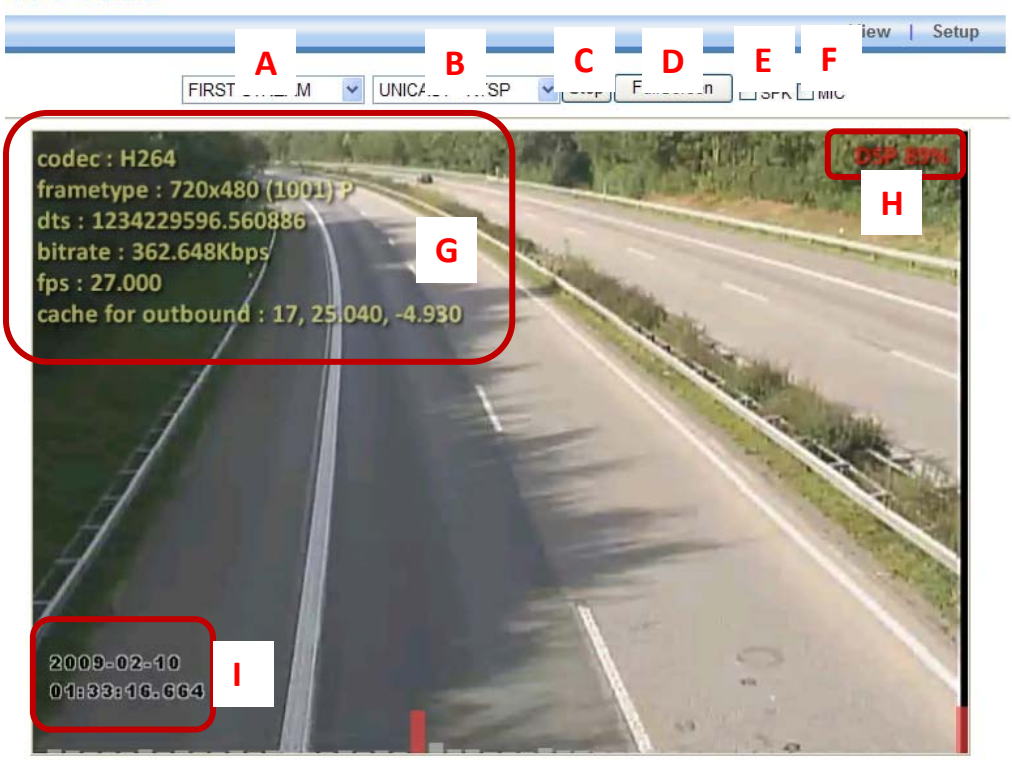
NOTE :
If the image view is not shown,
1. Check out if the camera is powered on and connected properly.
2. Delete “AxNVC” in “C:\WINDOWS\Downloaded Program Files” and try to connect again to Web Page with ZNS-GIT IPAdimn Tool or direct URL typing so that Active X installer can be downloaded again.

Display of debugging message on the VIEW page

1. Right-click on the image. Then, you can see the Property and About menu.
2. Select the Property tab.

3. Go to [Video] – [OSD] menu.
4. Select the OSD text you want to display by checking the boxes.

Meaning of each OSD and menu buttons



A : FIRST STREAM / SECOND STREAM : You can choose the stream to display on this view page. GANZ ENCODER AND NETWORK CAMERA series support dual stream with 1 camera video input. It enables you to use each of
streams independently for different purpose. The factory default for the first stream is configures as MPEG with 30 FPS. The second stream is configured as MJPEG with 5 FPS as a factory default. Go to the [Setup – Video&Audio – Codec] menu for the configuration of each stream.

B : UNICAST-RTSP / MULTICAST - RTSP : You can choose the type of data transmission. You can get the RTSP stream with unicast or multicast. You can set the configuration of RTSP at the [Setup – System Options – RTSP/RTP].

C : Play / Stop : Play or stop the display by clicking this button.

D: FullScreen : Allows the image to be extended into a full image. If you want to be back to the normal view, press the ESC key.

E : SPK : If you tick this option, you can listen to the audio data captured in the camera installed site. To enable this function, you need to connect the audio out of camera and the audio input port of GANZ ENCODER AND NETWORK CAMERA series physically. You can configure the detailed speaker feature at the menu of [Setup – Video&Audio – Audio].

F : MIC : If you tick this option, you can send out your voice through the microphone on your PC. To enable this function, you need to connect the microphone with your audio input port of your PC. You can configure the detailed microphone feature at the menu of [Setup – Video&Audio – Audio].

G : OSD (On Screen Display) information
It shows current status of codec. To adjust the setting, go to [Setup] – [Video & Audio] – [Codec].
Codec : H.264 - Selected codec type for the image
frametype : 720 X 480 - Resolution of the image
1001 - Data size for 1 frame which is calculated by YUY2 format
I or P - Frame type shown alternatively of the moment.
dts : 1234229596.560886 - The stamp showing when the image is encoded on the server. DTS is short for Device Time Stamp. The start of the time is 00:00:00, Jan 01, 1970.
bitrate :562.648 bytes - Bitrate of the image
fps : 27.000 - Frame per second.
Cache for bound : 17, 25.040, -4.930

17 : 17 frames are waiting to be decoded on the screen
25.040 : It shows the current speed of decoding. The normal speed should be 30 ms /fps if the fps configuration is fixed as 30 fps. But as shown in this example, Since 17 frames and 27 frames (currently sensed fps) are waiting to be decoded; the decoding is being processed at 25.040 ms/fps.
-4.930 : The speed to be improved for faster decoding (25.07 = 30ms - 4.930ms)

NOTE : dts and Cache for bound are not adjustable manually.

H : DSP : As the GANZ ENCODER AND NETWORK CAMERA series is DSP chip based products, the DSP load can be essential information for users. If the load goes over 80%, it turns red. Too high of DSP load could affect the performance of the encoder. For example, you should check out if any factor such as too high bitrate for both of 1st stream and 2nd stream are configured or not.

NOTE : Approximate DSP usage is provided. Those of figures are estimated under the condition of D1 of resolution, 1.5 Mbps of bitrate, only 1 channel is being occupied.

MJPEG	20~25%
MPGE4	around 60~65%
H.264	around 75% ~ 80%
MD	3%
VCA	20% ~ 25%

e.g. Configuring MPEG for 1st channel and H.264 for 2nd channel at the same time is not allowed.

I : Date and time (Burnt-in Text)

The time and date information are shown on the image by burnt-in process in the GANZ ENCODER AND NETWORK CAMERA server. These data are created before the compression of the image and transmitted to the client PC to prevent time data from being modified.

4. SETUP CONFIGURATION

In Setup page you can configure the setting values of GANZ encoder series, click Setup on the main page and you can see the menu tab on the left side of the Setup as below. A Viewer is not allowed to enter the setup page. You will need the Operator or Administrator account for this.

4.1. LOG IN

To access the Set up configuration do the following:

1. Enter “root” and “pass” (case sensitive) in the User ID and Password (root is the default setting for these fields)
2. Click OK

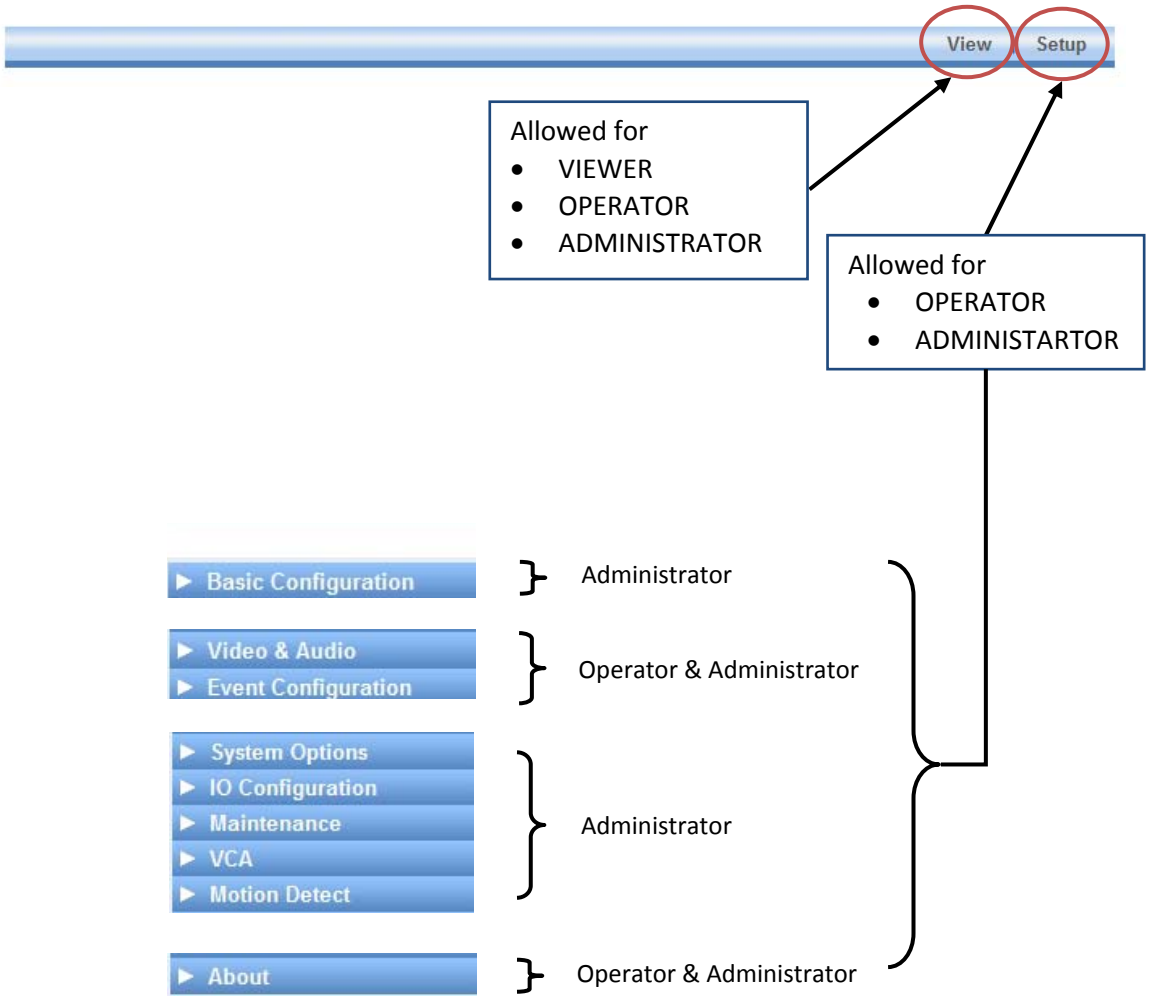
Apply and Reset

At the bottom of the every page of Setup, you can see two buttons, Apply and Reset.

Apply – Send the request to NVC server and get the expected result.
Reset – Remove the typed values or settings of current page and go back to the original setting values.

4.2. BASIC CONFIGURATION

4.2.1. User management

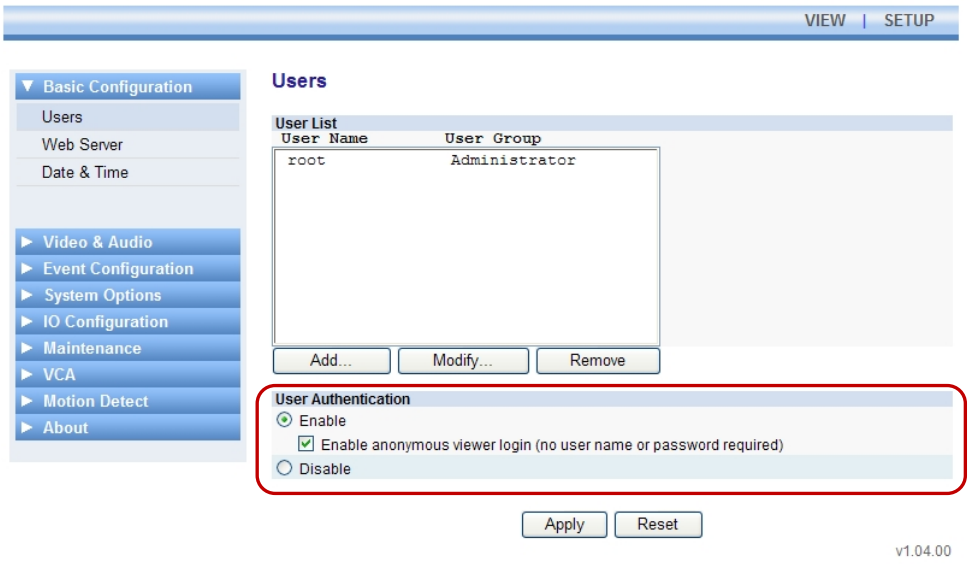


Users are managed into 3 groups, viewer, operator and administrator.

Root user (ID : root, PW : pass) is authorized to control all of parts in GANZ ENCODER AND NETWORK CAMERA management and this default user is not removable.

Limitation on user name
A user name can have from 1 up to 14 characters with alphabet and numbers.
The character range: alphabet is from a to z, A to Z and number is from 0 to 9.
Maximum of 32 accounts are available per privilege.

Limitation on password
A password can have from 1 up to 8 characters with alphabet and numbers
The character range: alphabet is from a to z, A to Z and number is from 0 to 9.



User Authentication

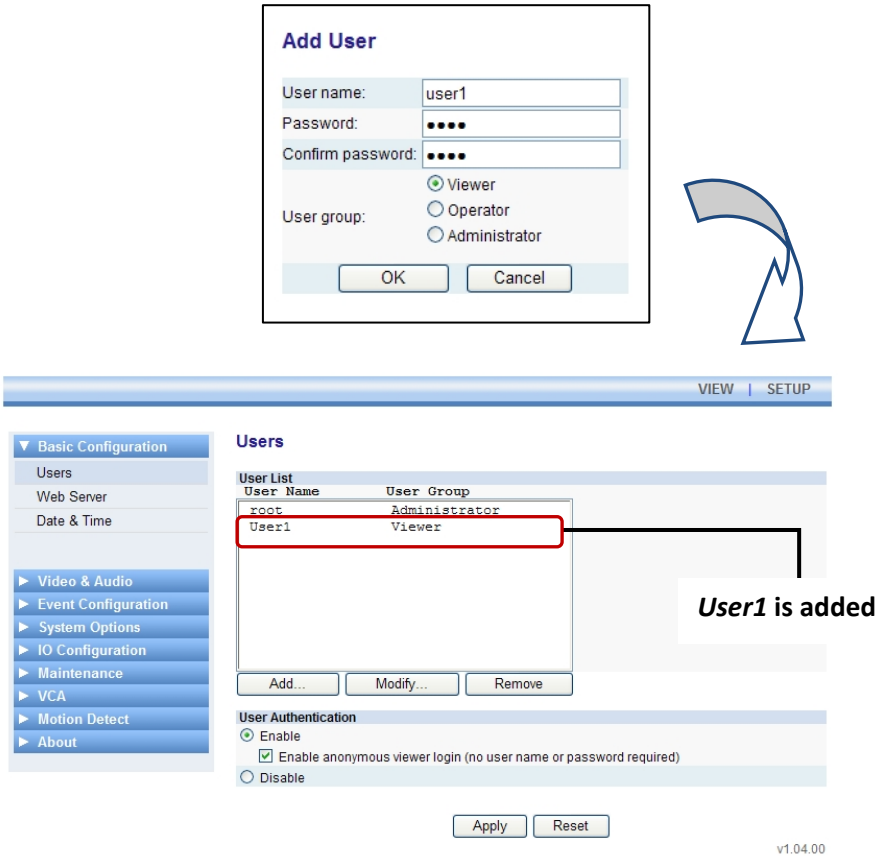
Enable – Enable the authentication step (Log-in required for all configuration).
Option: If you enable the 'Enable anonymous viewer login' box, it allows the anonymous user access to a VIEW page only. You can remove the check if you want to request a Viewer to enter ID and password.

Disable – Disable the authentication step (Log-in NOT required for all configuration).
Any authentication step is not required for both of image view and setup access.

NOTE : 'Disable of authentication' is NOTE recommended for the security reason.

How to add a user

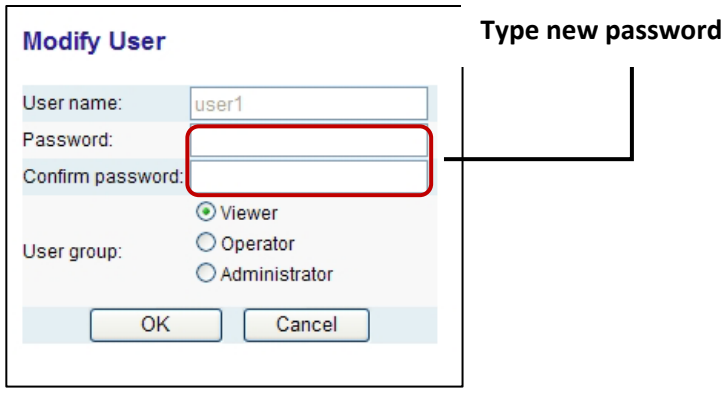
Click the Add button and then you can see the pop-up window as below. Type the user name and password and select the group you want. Now you can see that the user1 is added as the example.



How to modify a user

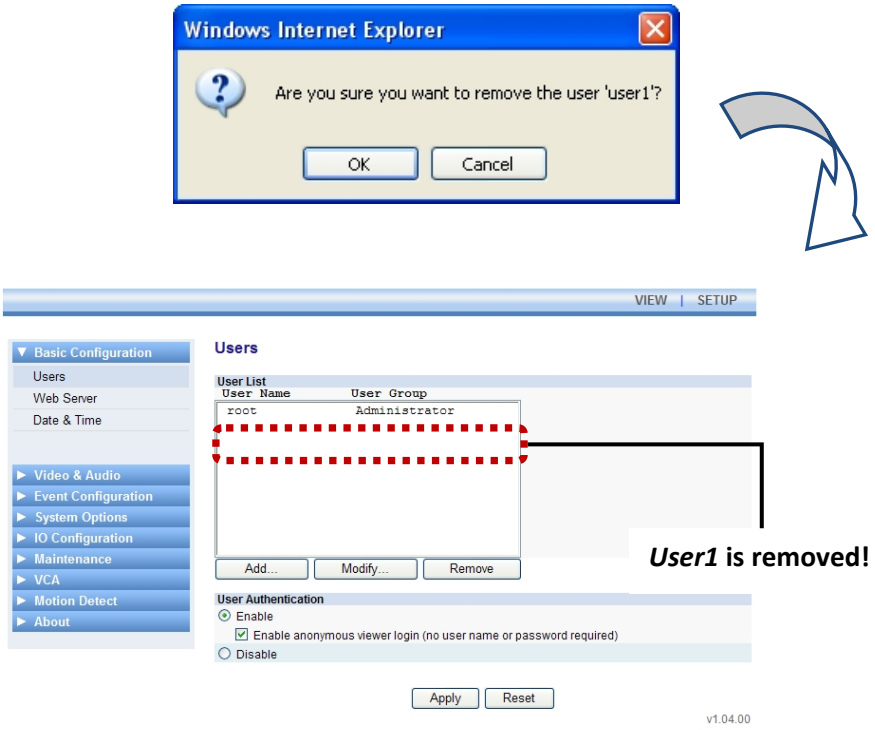
You can modify the password and the privilege of the user. If you have forgotten the password, you can change the password to the new one. Type the new password you want in the Password (This password change procedure doesn't require the old password).

Note : The user name is not allowed to be changed. If you want to modify the current user's name, just remove it and add a new user.

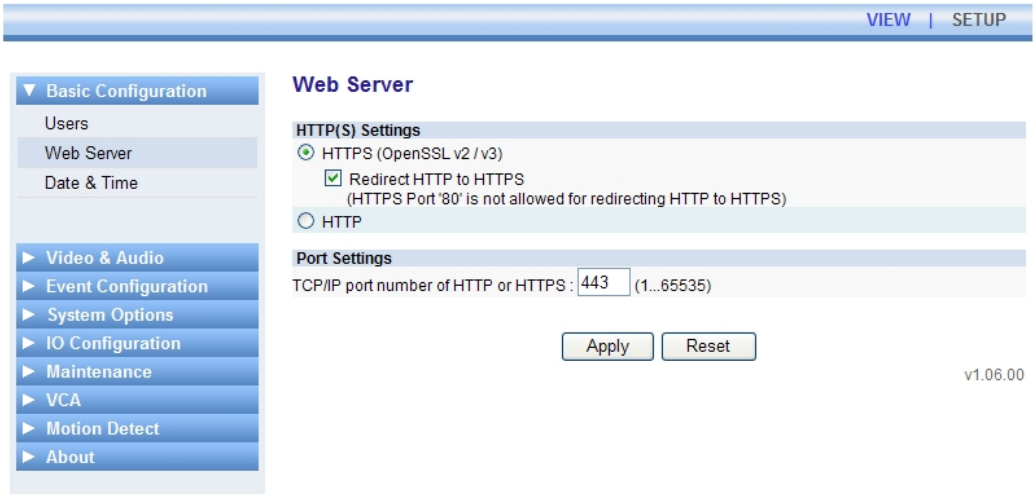


How to remove a user

After selecting the user name you want to remove on the User List, click the Remove button and you can see the dialog box below. Click OK button and you can see that the removed user is not shown on the User List anymore.



4.2.2. Configuration of HTTP and HTTPS



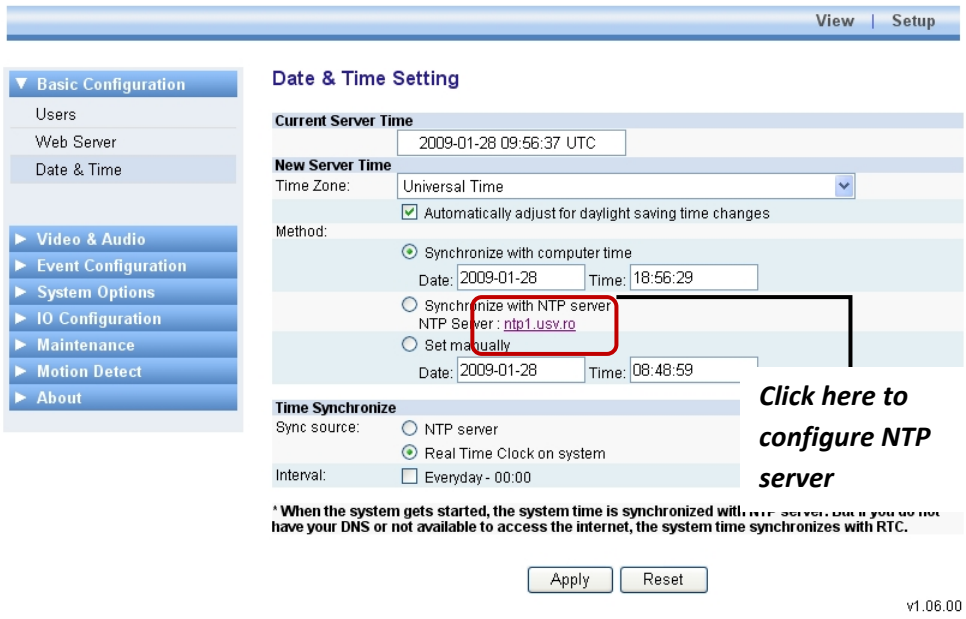
This page enables you to set the protocol to communicate with the web server of GANZ ENCODER AND NETWORK CAMERA. Basically, the data transmitted by HTTPS is encrypted by SSL. GANZ ENCODER AND NETWORK CAMERA series is applied with OpenSSL. HTTPS is highly recommended method compared to HTTP for the security reason but if you want to use HTTP, you can check 'Enable HTTP' easily.

What is SSL?
It's the abbreviation of Secure Socket Layer. SSL protects web server and makes it easy for users to trust the contents. When you use HTTPS for communication with server, the SSL certificate is required for the web server and the certificate enables encryption of video and audio data during online transactions. OpenSSL is one of the data security protocols for Linux system, which is used for the GANZ ENCODER AND NETWORK CAMERA series.

Setting the port number of web server
To communicate with server by HTTP or HTTPS with TCP, the port number can be fixed between 1 and 65535. The factory default is set as 443.

Redirecting HTTP to HTTPS:
Even if a user tries to access server with http, you can enable the server to redirect to HTTPS. In this case, do not set '80' for port number because it can cause a conflict with HTTP port.

4.2.3. Setting date and time of system



Time setting is very significant for all parts of GANZ ENCODER AND NETWORK CAMERA server because it affects the log of streaming and burnt-in text of video and you should be careful when you set the time in this page. Every time you change the setting, the web server program of GANZ ENCODER AND NETWORK CAMERA will be restarted internally (It does not reboot the whole system).

Display of current server time
It shows the current server time with real time update.

Selecting time zone
You can choose your own time zone from the drop-down box. If you check the 'Automatically adjust for daylight saving time changes,' it allows the daylight saving time to be applied according to your zone setting.

Setting current time of server
Select one of 3 options.

- Synchronize the server with your PC time
- Synchronize the server with NTP server via internet
- Set the server time manually by user

Periodical time synchronization
NTP server – Server time is synchronized with NTP server. You can configure available NTP servers at the menu [Setup – System Options – NTP]. Totally 4 of NTP servers can be added and the first one is set as a default server (ntp1.usv.ro).

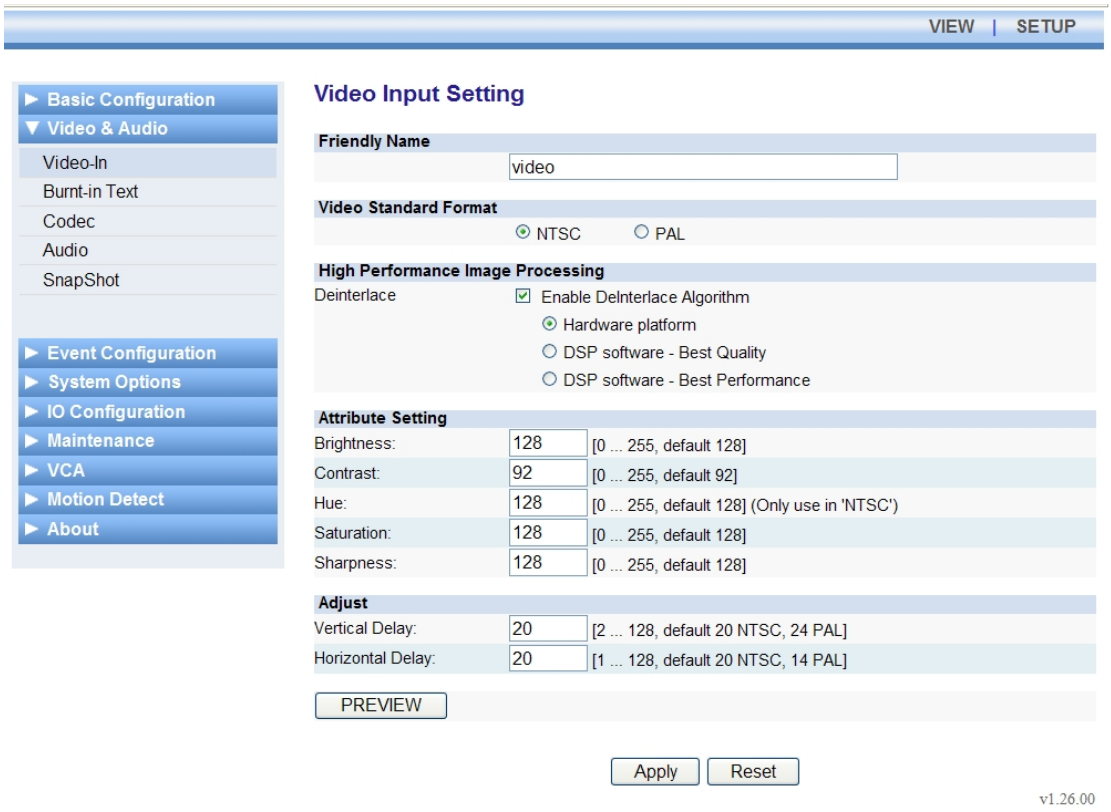
Real Time Clock on system – Server time is synchronized with Real-time clock in the server. The clock is attached to the board of GANZ ENCODER AND NETWORK CAMERA internally and the clock is recharged automatically when the server is started.

Interval of synchronization
Everyday 00:00 - Synchronized at every midnight
Disabled – Synchronized only when the GANZ encoder is booted newly (factory default)

4.3. VIDEO & AUDIO

4.3.1. Video input (channel naming/video format/ color control)

NOTE : This video input setting page is based on 1 channel encoder, ZN-S1000VE. If your camera or encoder model is other than ZN-S1000VE, move to the chapter '*6.REFERENCE TO MODEL*' and you can refer to the different part only from this page.



Naming of channel for camera

You can type any friendly name for the channel in case you have multiple channels with GANZ ENCODER AND NETWORK CAMERA series. It helps you distinguish the location of cameras. Like an example above, if you want to name the first camera as Video, just type the friendly name as Video

NTSC or PAL

You can choose one of the video standards according to your region.

High Performance image processing

'Enable Deinterlace Algorithm' enables high performance of image by merging the even fields and odd fields at the encoder side. If you don't want to use this function, just uncheck the box.

- *Hardware platform* : Processed by the hardware chip of GANZ ENCODER AND NETWORK CAMERA board (0% of DSP is used up)
- *DSP software* - best quality : Processed by the software of DSP (approx. 15% of DSP is used up)

- DSP software- best performance : Processed by the software of SDP (approx. 5% of DSP is used up)

What is deinterlace?
When an analogue image is transferred to the GANZ ENCODER AND NETWORK CAMERA encoding system, it comes with even fields and odd fields alternately. If you enable this option, two fields are merged into one frame at encoder side. It helps the client application reduces the resources of deintelacing.

NOTE :
As the GANZ ENCODER AND NETWORK CAMERA series is DSP chip based products, the DSP load can be essential information for users. If the load goes over 80%, it turns red. Too high of DSP load could affect the performance of the encoder. For example, you should check out if any factor such as too high bitrate for both of 1st stream and 2nd stream are configured or not.

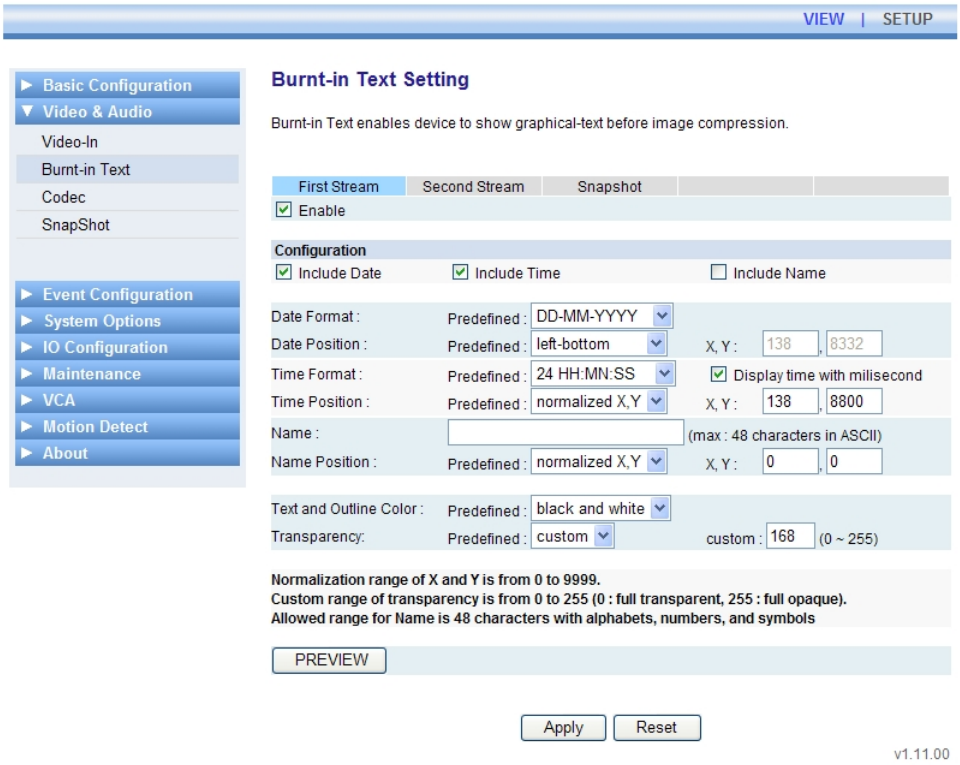
Refer to the section '*3. Main page configuration*' of this manual for more information of DSP usage.

Setting of image attribute
Brightness, contrast, hue, saturation and sharpness are adjusted.
Brightness: The range is from 0 to 255, the default is 128.
Contrast: The range is from 0 to 255, the default is 92.
Hue: The range is from 0 to 255, the default is 128.
Saturation: The range is from 0 to 255, the default is 128.
Sharpness: The range is from 0 to 255, the default is 128.

Adjusting the location of image
When the image does not fit into the screen view, you can move the image vertically or horizontally so that the images fit into the screen perfectly. The range is from 1 to 128 and the default is 20 for NTSC and 25 for PAL

Using PREVIEW button
After the settings above, you can check out the display with this preview button before applying with Apply button.

4.3.2. Inserting Burnt-in Text on the image



You can set the Burnt-in Text for the first stream, the second stream and snapshot separately. If you enable 'Display graphical text before image compression,' it allows the text to be burnt in the image before compression. If you don't want this function, just uncheck the box.

What is Burnt-in Text?

When you want to display date or time on the image view, normally they are displayed on PC monitor without the combining process with image from cameras. On the other hand, Burnt-in Text let the texts be burnt in the image before compression. This feature may guarantee the accuracy of the material and allows them to be applied to reliable evidence as it's not available to manipulate the date and time data.

Configuration

Check or uncheck the data you want to display.

Note

When you set the position of date, time and text, it's recommended to use Normalized X,Y instead of left-top, left-bottom, right-top, right-bottom. Because the left-top etc are just for example and if you let them fixed with example position option, it may cause the overlap of text according to your image resolution or the position of each text. To preview the position you set, you can use the PREVIEW button.

Date format

Choose the format of the year, month and day for display.

YYYY-MM-DD / DD-MM-YYYY

Date position
Fix the position to display the date.
Normalized X,Y / left-top / left-bottom / right-top / right-bottom

Time format
Choose the format of the time for display.
24 HH:MN:SS / 12 HH:MN:SS

Time position
Fix the position to display the time.
Normalized X,Y / left-top / left-bottom / right-top / right-bottom

Name
Type the text you want burn. Allowed range for Name is 48 characters with alphabets, numbers, and symbol.

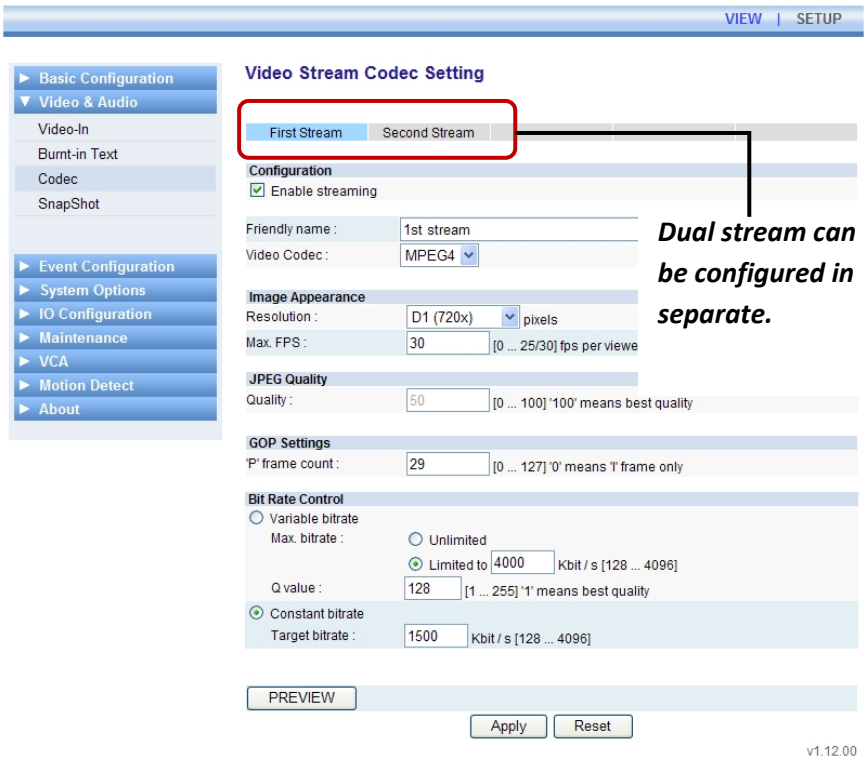
Name position
Fix the position to display the name.
Normalized X,Y / left-top / left-bottom / right-top / right-bottom

Text and Outline Color
Choose the color of the text.
white and black / black and white

Transparency
Choose the transparency from 0 to 75%.
ALPHA, 0%, 25%, 50%, 75%

PREVIEW
If you click this button, it shows the image preview with the current setting.

4.3.3. Codec (video codec, resolution, FPS, Bit rate control)



Enable codec streaming
If you uncheck this box and click Apply button, you are not able to get the video stream anymore from GANZ encoder and network camera server.

Naming of each stream
Type any friendly name to use for the stream. If you have multiple channels and streams, this friendly name helps users distinguish each stream.

Video codec
MJPEG / MPEG4 / H.264

Image Appearance

Supported resolution

	NTSC	PAL
D1	720x480	720x576
VGA	640x480	640x480
QVGA	320x240	320x240
4CIF	704x480	704x576
CIF	352x240	352x288
QCIF	176x112	176x144

Max. FPS

Type the FPS you want.
25 fps is a maximum for PAL, 30 fps for NTSC.

JPEG Quality

This quality value can be set only when the codec is MJPEG. The range is from 0 to 100 and 100 represents the best quality of MJPEG.

GOP Settings

'P' Frame count
GOP is an abbreviation of "Group of Pictures" and one GOP has only 1 I frame with other P frames. Set the number of P frames here and it decides the GOP size. For example, if you have set the P frame count as 59, then it means that GOP is 60.

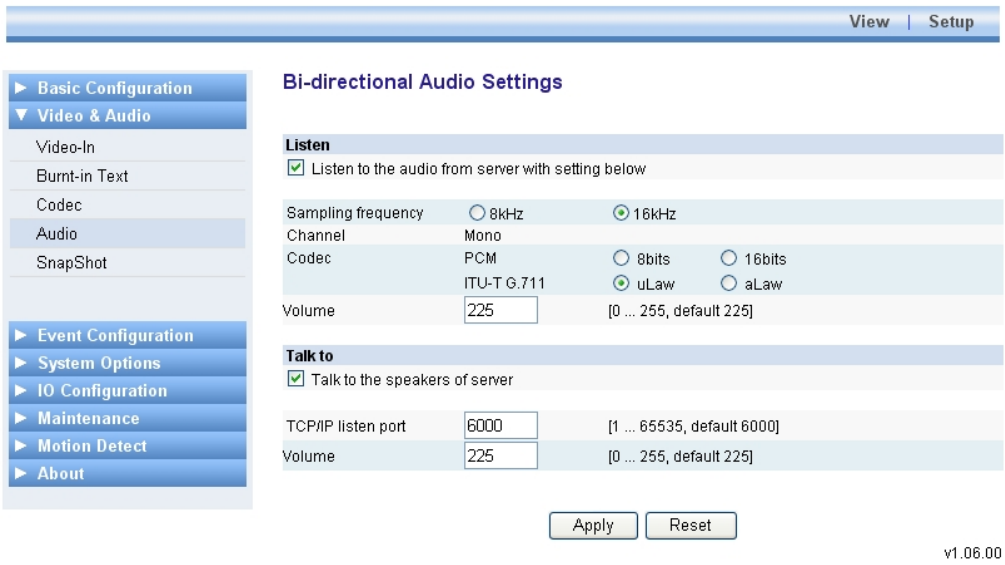
Bit Rate Control

VBR (Variable bit rate)
Limited - It is called HVBR as well. If you set the limit of bitrate, it enables the bitrate not go over the limited value.
Unlimited – When you set the bitrate as unlimited, it has no limitation on bitrate. It is used when your devices have enough storage and high quality of image is required.

Q value – You can set the Q value, quantization value for the image quality when the bitrate is set as variable bit rates.

CBR (Constant bit rate)
You can set the target bitrate from 128 to 8000 and it is used when your device has limited storage.

4.3.4. Audio (listening, speaking)



Listening to the audio

This page helps you to set the values for capturing the analogue audio generated at the camera installed site. After the configuration of 'Listen', you can listen to the sound with the speakers of your PC. To listen to the captured sound, go to the View page and check the SPK box. If you uncheck the box of 'Enable capture and compression audio,' it will disable the server to capture the sound.

Sampling frequency
You can choose the sampling frequency.

Channel
Only mono type is provided.

Codec
You can choose the proper codec from PCM and G.711.

Volume control
The volume is adjusted from 1 and 255. The default is 128.

Talking to the speakers

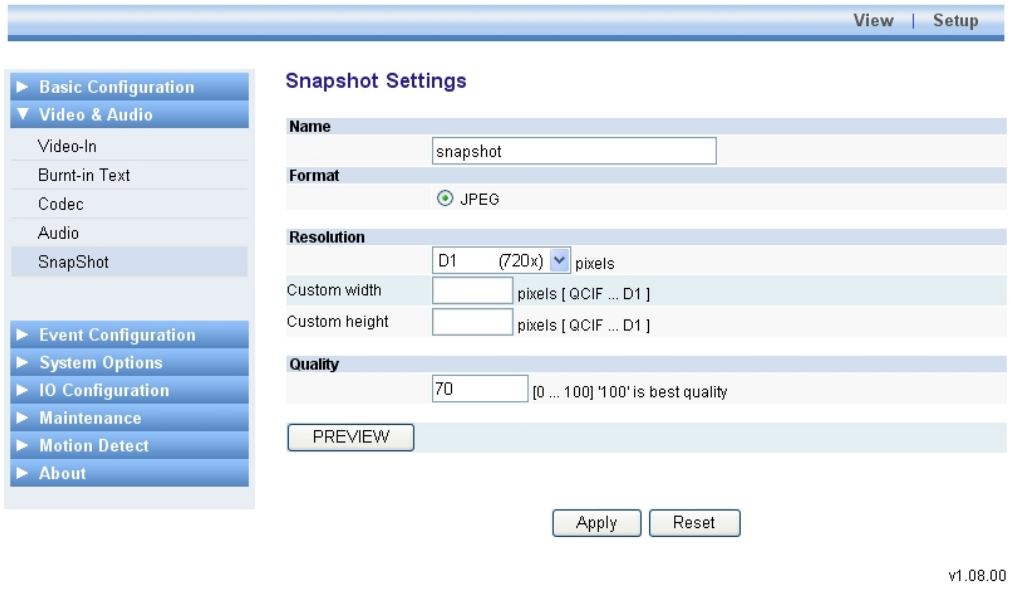
You can set the values for talking to the speakers directly connected to the GANZ ENCODER AND NETWORK CAMERA server. To enable this feature you need to connect the microphone with the audio port of your PC. If you uncheck the box of 'Enable audio to receiving and playback', it disables the 'Talk to' feature.

NOTE : The configuration of codec and frequency of audio output is applied by the identical setting of audio input.

TCP/IP listen port
Set the port for listening to the audio received from the remote. The default is 60000 and the range is from 1 to 65535

Volume control
The default is 128 and the range is from 1 and 255.

4.3.5. Snapshot



The codec format for Snapshot has no relation with the codec setting of the first stream or the second stream because the snapshot is created on a separate stream regardless of the first and the second one. Be notified that only JPEG is fixed for a default codec in snapshot setting.

Using PREVIEW button
The button enables you to see the captured image

How to save the snapshot image?
Click the Preview button and right-click on the captured image and select 'Save picture as…' to save that image on your local PC

Name
Type any friendly names for multiple channels if required.

Format
Only JPEG is supported for the snapshot image.

Resolution
You can choose the resolution you want.

	NTSC	PAL
D1	720x480	720x576
VGA	640x480	640x480
QVGA	320x240	320x240
4CIF	704x480	704x576
CIF	352x240	352x288
QCIF	176x112	176x144

Quality
You can set the quality of snapshot. The range is from 0 to 100 and the default is 70.

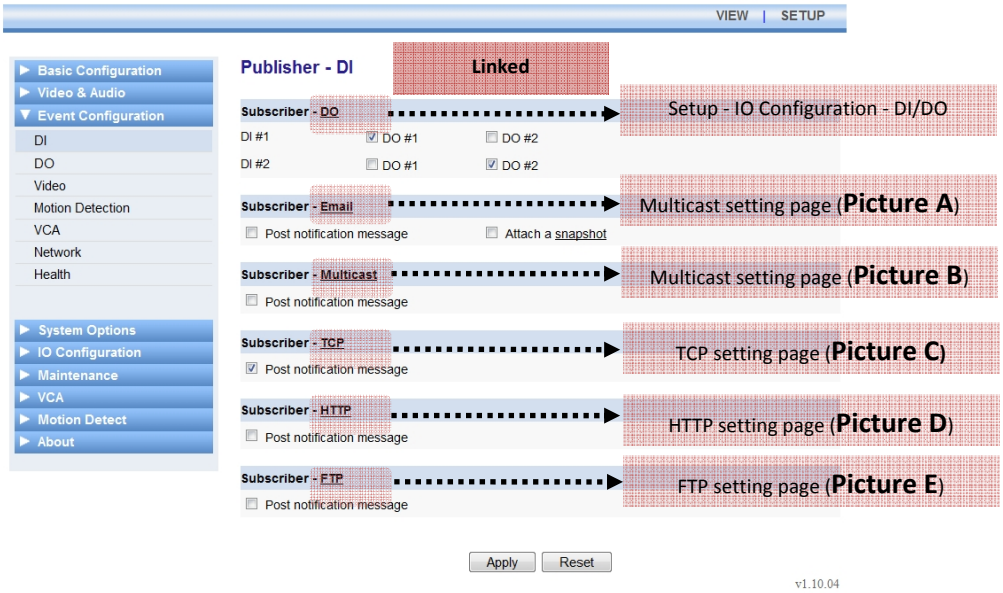
4.4. EVENT CONFIGURATION

NOTE : This Event setting page is based on 1 channel encoder, ZN-S1000VE. If your camera or encoder model is other than ZN-S1000VE, move to the chapter *'6.REFERENCE TO MODEL'* and you can refer to the different part only from this page.

GANZ ENCODER AND NETWORK CAMERA series is equipped with the event server program internally and it enables you to configure the event publishers and subscribers. For instance, DI, DO, Video loss, Motion Detection, VCA (video contents analysis), Network loss, IP change, and health of network server can publishes the event message when an event is generated.

How to move to each subscriber setting page

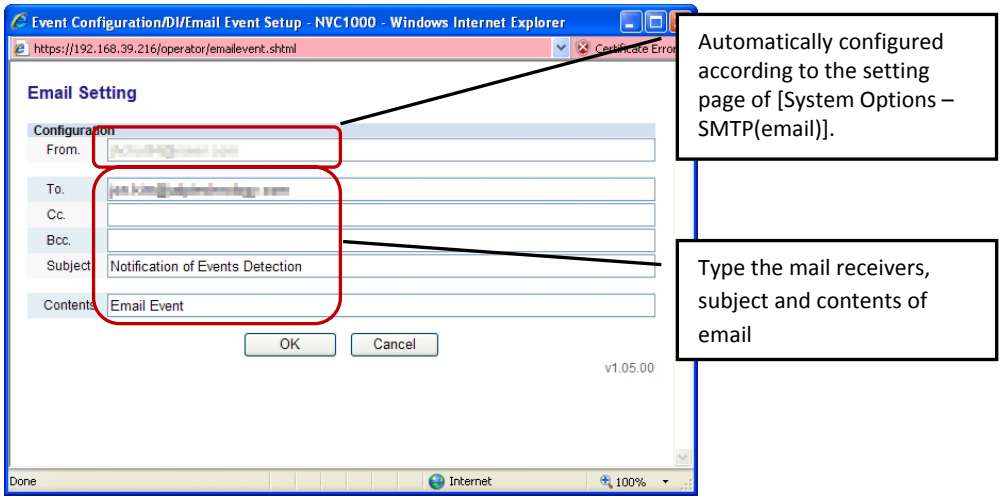
Below is an example page of DI page. Click each subscriber name such as DO and you can find that they are linked to the related setting pages. Refer to the figures of below for more specific information.



4.4.1. How to configure each event server

1. How to set the EMAIL page for sending an email

You can use Email server to get the event notification from GANZ ENCODER AND NETWORK CAMERA and send them to the client application via email. This page helps you to configure the Email server.



Below is an example of received email contents when there was a video loss event.

Notification of Events Detection

Sent:
To:

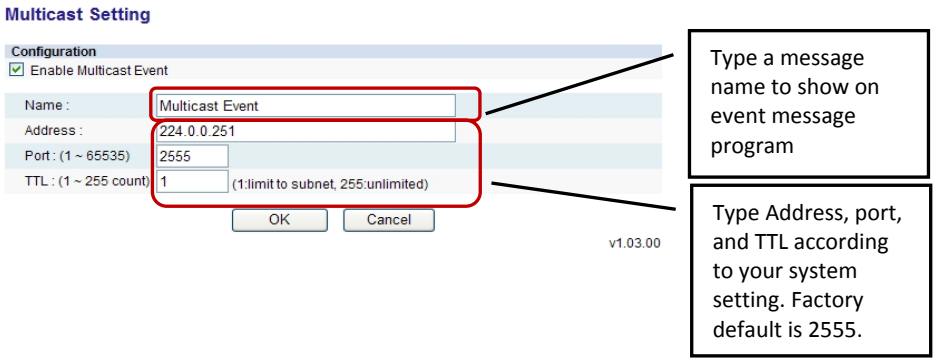
Email Event

This is an auto-generated message to inform you following events are detected. More details are as follows.

Unit IP : **192.168.39.216**
Unit Name : **JEN ENC**
Event Type : **vsignal count=1 (vsignal loss)**
Date and time : **Thu Jan 1 07:08:19 1970**

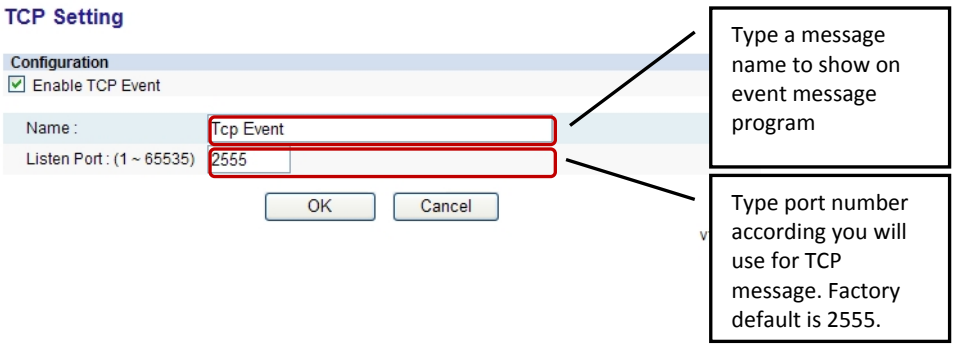
2. How to set the Multicast server for sending an event message

You can use Multicast server to get the event notification from GANZ ENCODER AND NETWORK CAMERA and send them to the client application. This page helps you to configure the Multicast server.



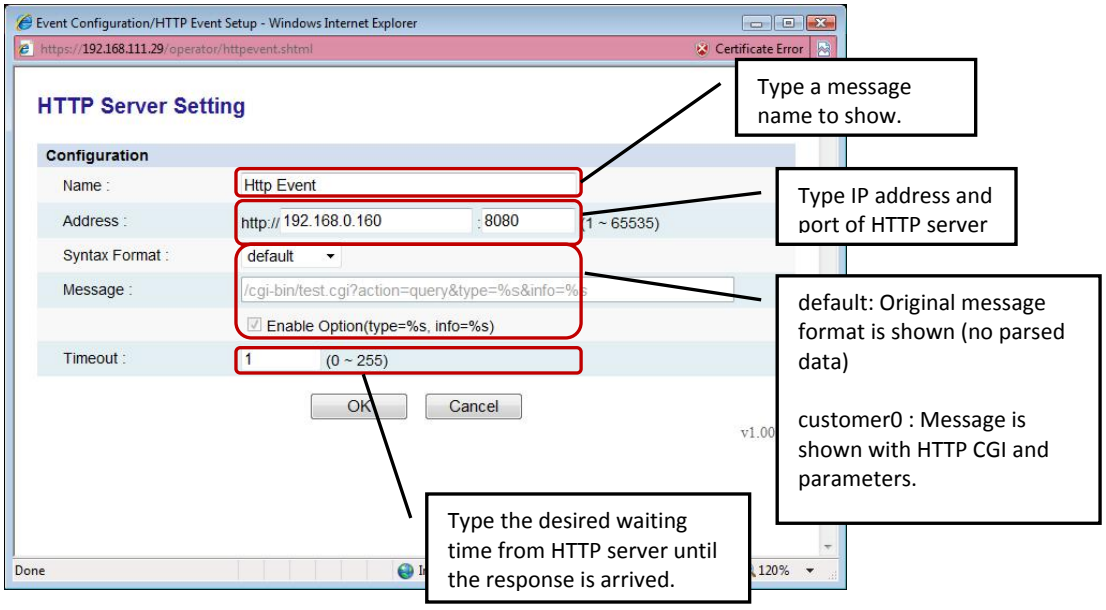
3. How to set the TCP server for sending an event message

You can use TCP server to get the event notification from GANZ ENCODER AND NETWORK CAMERA and send them to the client application. This page helps you to configure the TCP server.



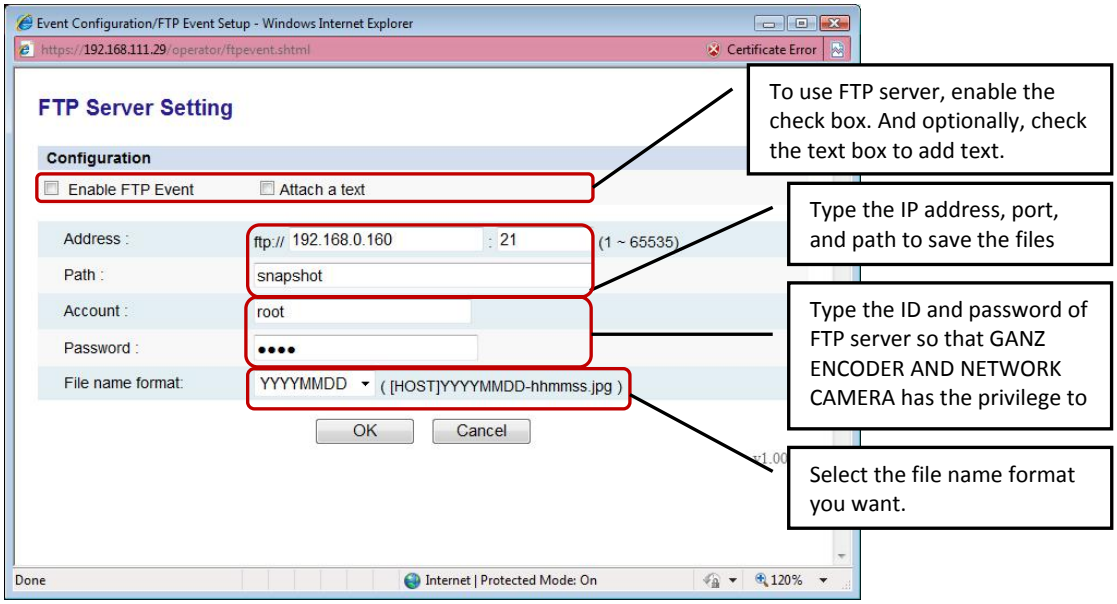
4. How to set the HTTP server for sending an event message

You can use HTTP server to get the event notification from GANZ ENCODER AND NETWORK CAMERA and send them to the client application. This page helps you to configure the HTTP server.



5. How to set the FTP server for sending an event message

You can use FTP server to get the event notification from GANZ ENCODER AND NETWORK CAMERA and send them to the client application. This page helps you to configure the FTP server.


Event Configuration/FTP Event Setup - Windows Internet Explorer
https://192.168.111.29/operator/ftpevent.shtml
Certificate Error
FTP Server Setting
Configuration
Enable FTP Event
Attach a text
Address :
ftp:// 192.168.0.160 : 21 (1 ~ 65535)
Path :
snapshot
Account :
root
Password :
••••
File name format:
YYYYMMDD ([HOST]YYYYMMDD-hhmmss.jpg)
OK
Cancel
v1.00
Done
Internet | Protected Mode: On
120%
To use FTP server, enable the check box. And optionally, check the text box to add text.
Type the IP address, port, and path to save the files
Type the ID and password of FTP server so that GANZ ENCODER AND NETWORK CAMERA has the privilege to
Select the file name format you want.

4.4.2. Assigning event rule to event publishers

Supported subscribers per each publisher:

Publishers	Subscribers
DI	DO, Email, Multicast, TCP, HTTP, FTP
DO	Email, Multicast, TCP, HTTP, FTP
Video	Email, Multicast, TCP, HTTP,
Motion Detection	Email, Multicast, TCP, HTTP, FTP
VCA	DO, Email, Multicast, TCP, FTP
Network	Email, Multicast, TCP
Health	Multicast, TCP

The below is an example page of DI event configuration. For each event server setting, refer to the section '*4.4.1. How to configure each event server*'.

When you set DI as a publisher, DO, Email, Multicast, TCP, HTTP, and FTP server can be the subscriber of DI triggering.

Subscriber – DO
Check the DO box you want to trigger and click Apply button. For example, if you check off the DO #1 of DI #2 => when DI #1 is detected, DO#2 will be activated.

Subscriber – Email
If you check 'Post notification message,' and click Apply button, the server will send the notification message by e-mail to the client when DI detection is occurred. [System Option - SMTP] and email account must be configured to activate this function.

If you check 'Attach a snapshot,' captured image will be attached to the email.

Subscriber – Multicast
If you check 'Post notification message' and click Apply button, the server will send the notification message via Multicast server when DI detection is occurred. Multicast server must be configured to activate this function by clicking the link button (Multicast).

Subscriber - TCP
If you check 'Post notification message' and click Apply button, the server will send the notification message via TCP server when DI detection is occurred. TCP server must be configured to activate this function by clicking the link button (TCP).

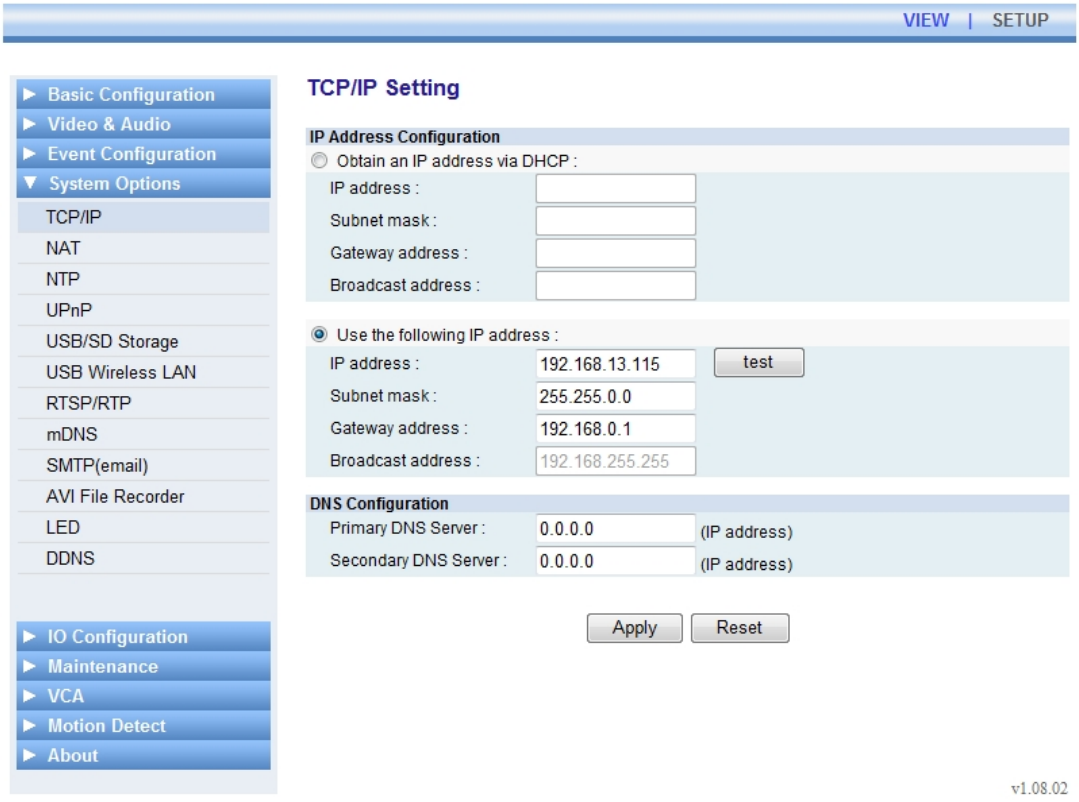
Subscriber - HTTP
If you check 'Post notification message' and click Apply button, the server will send the notification message via HTTP server when DI detection is occurred. HTTP server must be configured to activate this function by clicking the link button (HTTP).

Subscriber - FTP
If you check 'Post notification message' and click Apply button, the server will send the notification message via FTP server when DI detection is occurred. FTP server must be configured to activate this function by clicking the link button (FTP).

If you have finished to configure the event server and required subscribers, click Apply button for the application.

4.5. SYSTEM OPTION

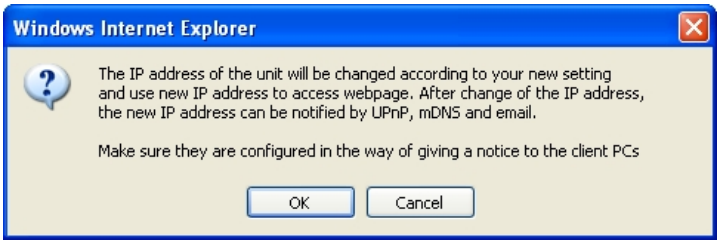
4.5.1. Setting TCP/IP (DHCP, Static IP, DNS setting)



IP Address Configuration

Obtain IP address via DHCP

If you want to get your IP from DHCP server automatically, check this option and click the Apply button. You may find the message box of below is popped up. It explains that the DHCP server in your router device may cause a problem and fail to lease new IP address. In that case, the latest static IP address will be applied instead. Click OK button to accept the notification.


Windows Internet Explorer
The IP address of the unit will be changed according to your new setting and use new IP address to access webpage. After change of the IP address, the new IP address can be notified by UPnP, mDNS and email.
Make sure they are configured in the way of giving a notice to the client PCs
OK
Cancel

Windows Internet Explorer
If DHCP server happens to fail to lease an IP address because of unexpected network problem or DHCP server error, the latest static IP address will be applied instead.
OK
Cancel

Use the static IP address
If you want to use your GANZ ENCODER AND NETWORK CAMERA series with the static IP, enable the 'Use the following IP addresses' and click the Apply button.

IP address: The IP address of your device
Subnet mask: The address of subnet mask of your device.
Gateway address: The gateway address of your device.
Broadcast address: It is automatically fixed by the subnet mask and IP address of your own. For example, if you use B class (255.255.0.0) of mask, the broadcast address will be 192.168.255.255.

The test button shows if the typed IP address is occupied or not. You may find the popup windows as below according to the availability of typed IP address.

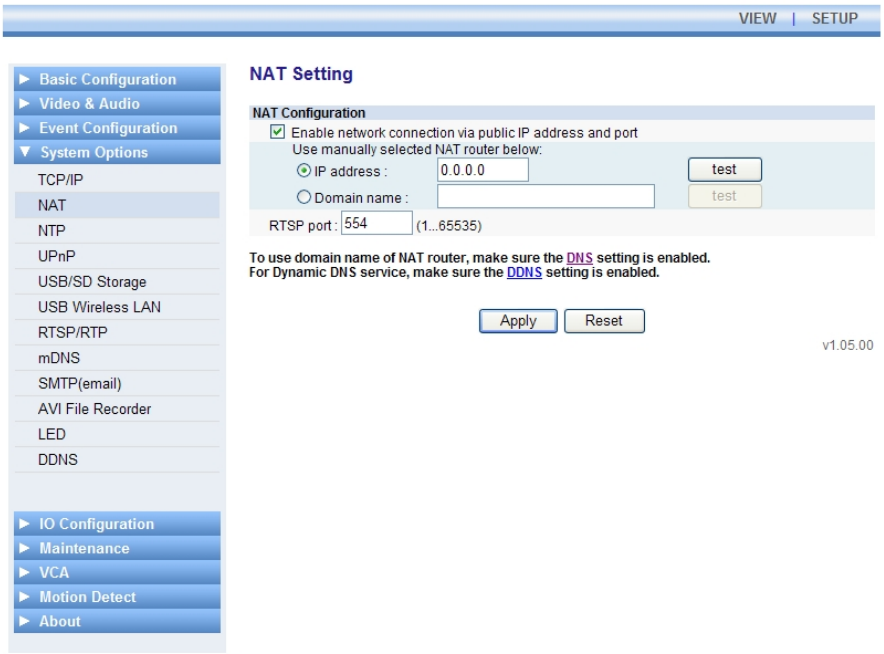
Occupied IP

Available IP

DNS Configuration

Type the IP address of DNS server you use.

4.5.2. NAT setting (Port mapping)



If you use the NAT router for the GANZ ENCODER AND NETWORK CAMERA network connection, you may need to set the real IP address or domain name and port number.

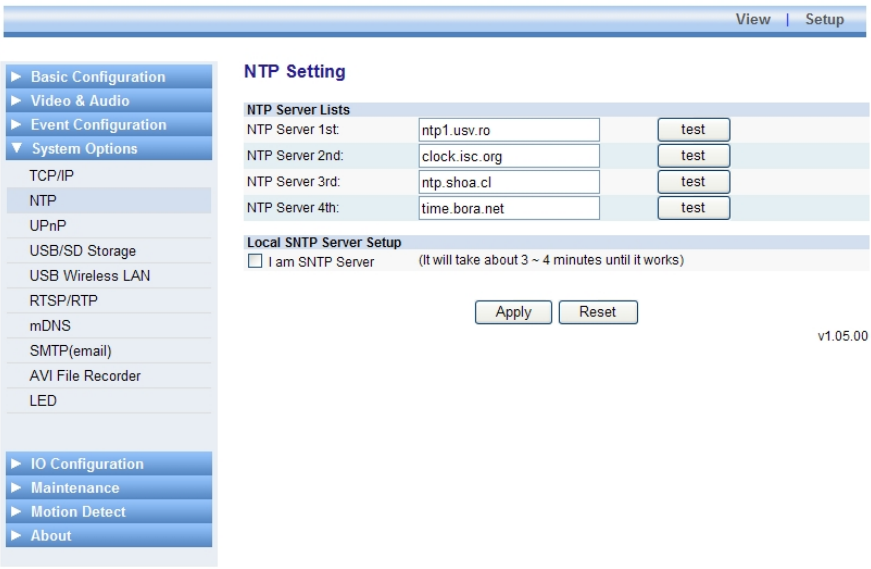
1. Check the box of 'Enable network connection via public IP address and port'.
2. Type the IP address and port number that your router uses.
3. Click Apply button (if you want to go back to previous setting, click Reset button).

When you use domain name, you should check out if the DNS or DDNS is enabled.

Go to [System Option – TCP/IP] for DNS setting.
Go to [System Option – DDNS] for DDNS setting.

NOTE: The IP address of NAT router should be designated manually.

4.5.3. Setting NTP server



NTP Server Lists

You can set up to 4 NTP servers as you can see at the example of above. To enable the NTP servers, DNS server setting should be done in advance in the menu of TCP/IP page and please check out if the DNS configuration is accurate.

I am SNTP Server

it's also called 'Squid server.' When you have multiple NVC servers, it helps to reduce the network load because only the one with 'I am SNTP Server' checked will get the time information from the NTP servers and other NVC servers are synchronized with this Squid server.

How to use:

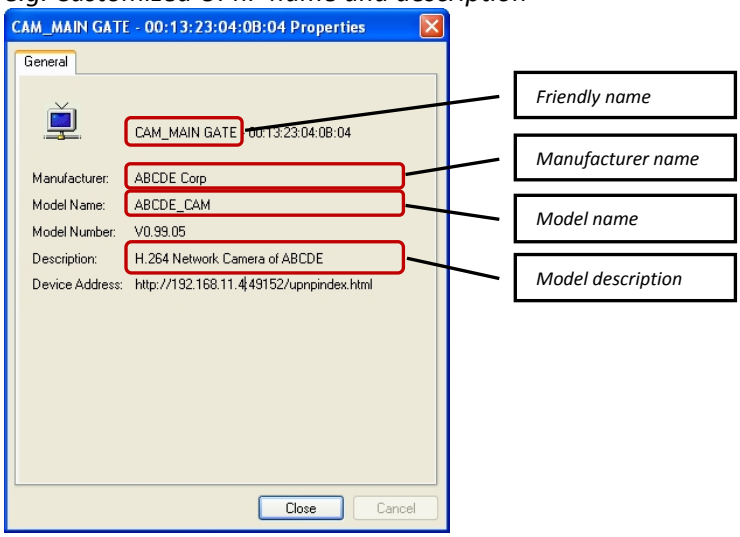
1. Enable 'I am SNTP server' of squid server and click Apply.
2. Access the webpage of the GANZ ENCODER AND NETWORK CAMERA which is supposed to be the client device of the squid server. Go to [System Options – NTP] and type the IP address of squid server on the 'NTP Server 1s't. (Format example : 192.168.11.4)
3. Click 'Test' button to find out if it works fine.
   NOTE: It will take about 3~4 minutes until the squid server response.
4. Go to [Setup – Basic Configuration – Date & Time] and choose the 'Synchronize with NTP server' for the method of New Server Time menu. Make sure if the 'NTP Server' displays the designated squid server's IP correctly with red characters.
5. Click 'Apply' button and it will be restarted.

4.5.4. Setting property for UPnP

UPnP allows IP devices to connect seamlessly, and to simplify the implementation of networks in remote PC environments.

Refer to the example of UPnP of Windows XP so that you can check out how the customized settings are being applied. Find this information on your PC [Start - My network places]. Find your device, right-click the mouse and go to [property].

e.g. Customized UPnP name and description



Configuration

If you want to enable UPnP to search your device, check the box of 'Enable UPnP'.
Friendly Name: Type any friendly name to be shown by the UPnP program. You can test it easily with Windows as well (Start - My network Places displays the devices by UPnP)

Customize Manufacturer Description

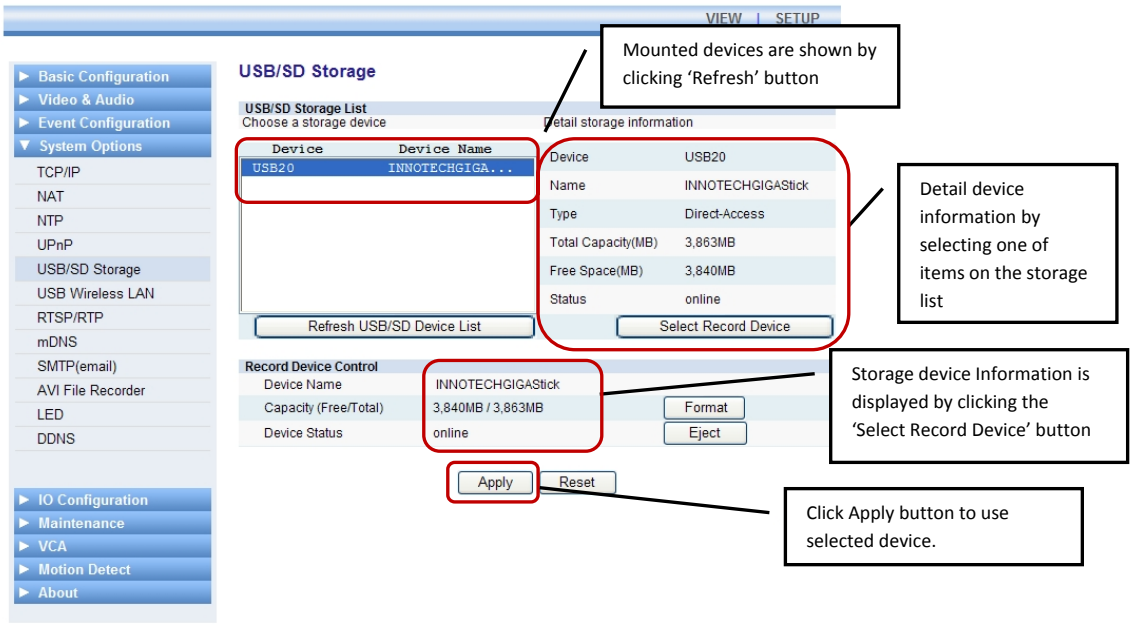
If you want to have your own manufacturer’s name for GANZ ENCODER AND NETWORK CAMERA series to be shown on the UPnP program, type name and URL. Then, The UPnP program will show the modified name and URL.

Customize Model Description

If you want to have your own model name for GANZ ENCODER AND NETWORK CAMERA series to be shown on the UPnP program, type name, description and URL of them. Then, The UPnP program will show the modified name, description and URL.

4.5.5. USB/SD Storage

NOTE : This USB/SD setting page is based on 1 channel encoder, ZN-S1000VE. If your camera or encoder model is other than ZN-S1000VE, this page may not be seen according to your model. Refer to the chapter 6. REFERENCE TO MODEL.



This page is provided to search mounted USB/SD storages device and select one of them for data recording. Please follow the steps described at the below. After setting this page, move to the menu of [System Options - AVI File Recorder] page and start the recording.

How to set the recording device

1. Insert a USB or SD memory card.
2. Click the 'Refresh USB/SD Device List' and you can find that the devices are listed on the window. If the storage device is not listed right after mounting, wait for a few seconds and click the Refresh button again as it might take some time until the device is recognized.
3. Select and the device on the list and then the device information such as name, type, total capacity, free space and status are shown on the right side of the list.
4. Click the 'Select Record Device' button and the chosen device information is listed on the Record Device Control.
5. Click Apply button to use the selected device for recording.
6. If you have completed the steps above, go to the [System Options – AVI File Recorder] menu and you can start the recording.

NOTE : If the total capacity and free space are not shown, refresh the device list in a few seconds. Because it takes some time to bring the file system information to the web page. If the space information is not shown still, your storage device is not formatted properly. Format your storage device and try to refresh again.

Formatting the disk

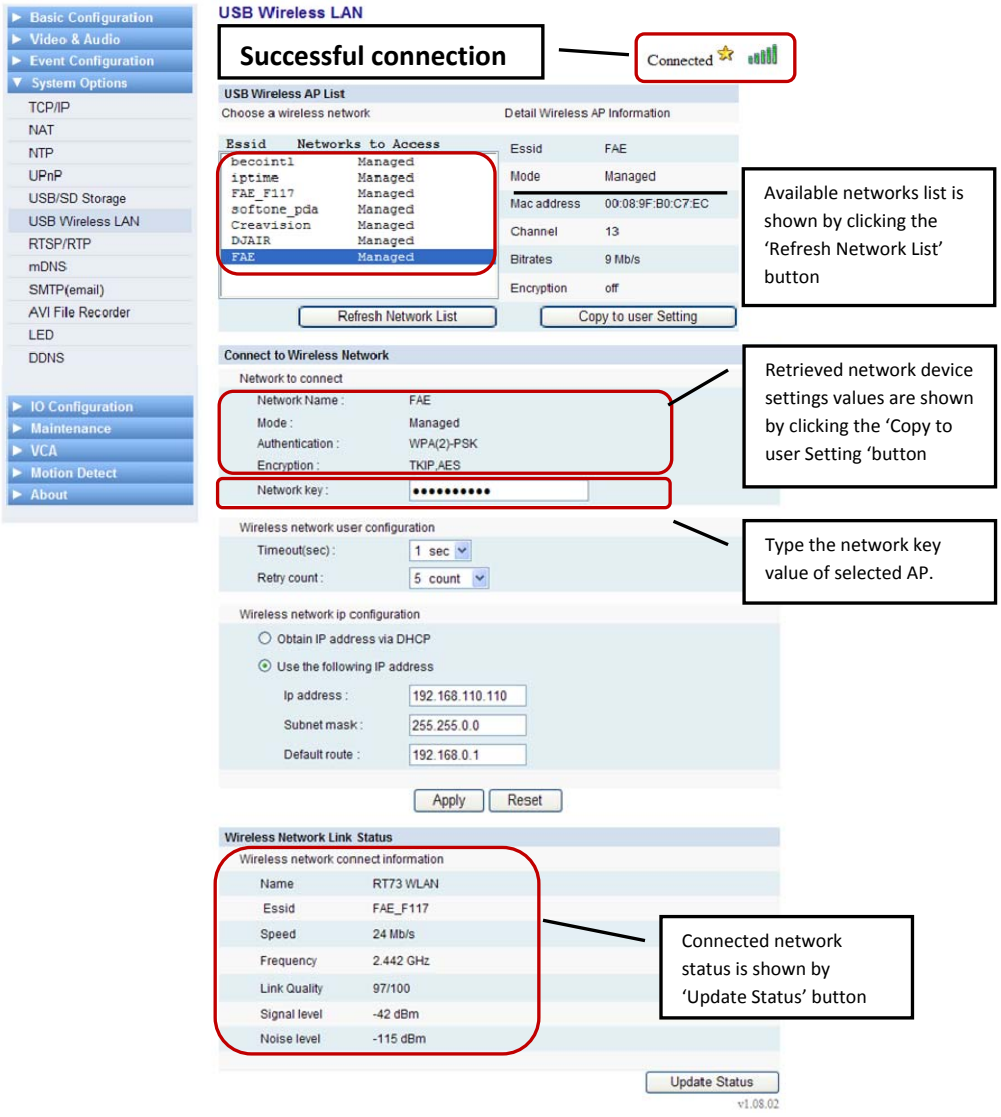
It enables the storage device to formatting. Click the ‘Format’ button and ‘Apply’ after selecting the storage device.

Ejecting the disk
When you want to remove the storage device safely, click the ‘Eject’ button. If the ejecting process is done, now you can remove the memory stick from your GANZ ENCODER AND NETWORK CAMERA device.

4.5.6. USB Wireless LAN

NOTE : This USB Wireless setting page is based on 1 channel encoder, ZN-S1000VE. If your camera or encoder model is other than ZN-S1000VE, this page may not be seen according to your model. Refer to the chapter 6. REFERENCE TO MODELS

After the wireless LAN configuration, you can use the device in one of two modes: wired or wireless. You cannot use the camera in both modes simultaneously. To switch between wired and wireless modes, you have to plug or unplug the Ethernet cable. Unplugging the Ethernet cable switches the device to wireless mode automatically.



If you are ready with the USB wireless LAN device, follow the steps below.

Step 1. Recognizing the USB wireless LAN device

1. Insert the USB wireless LAN device into the GANZ encoder and network camera.
2. After a few seconds, click the '*Refresh Network List*' and you can see that the device is listed on the window.
3. Click the device you want on the list. Then, the device information such as ESSID, mode, MAC address, channel, and encryption are shown on the right side of the list window.
4. Click the 'Copy to user setting' button and the chosen device information is copied on '*Networks to connect*' section of below.

NOTE : If 'Not connect wireless….' message is displayed after clicking the 'Refresh Network List', please check the setting of your wireless AP/router. Also make sure the USB wireless LAN card is mounted on the unit properly.

Step2. Connecting wireless network

If you have completed the recognition of the USB device for wireless LAN at the step1, you can find that the '*Network name, Mode, Authentication, and Encryption*' are filled automatically according to the wireless LAN device information.

1. Type the '*Network key'* and confirm it. The network key should be equal to the AP or client PC you will communicate.
2. Set the *Time out*, *Retry count*, and *Disable auto start* referring to the explanation of below.

   Time out - When there's no answer from the server for time out seconds, it means it failed connecting to the server and you need to try to connect again.
   Retry count – The number of retrial connections when there's no answer from the server.
   Disable auto start – When you do not want to get started the wireless network automatically, you can check this box.

NOTE : The current time out or retry count is not renewed automatically. Try to renew the page manually to see if the network is connected properly.

3. Set the wireless network IP configuration. If your mode is Ad-Hoc, only static IP setting is allowed.

   Obtain IP address via DHCP - Get the IP address from DHCP automatically.
   Use the following IP address – Get the IP address with the manual setting. If your mode is infrastructure (AP) networks, you should check out the range of IP address.

4. If you have completed the configuration of above, you can save or try to connect the wireless LAN with button of *Apply* and *Reset*.

   Apply – Save the current setting and apply them.
   Reset – It does not save the setting of the current page and go back to the prior setting.

5. Disconnect the Ethernet cable from the device. Unplugging the Ethernet cable switch the device to wireless mode automatically.

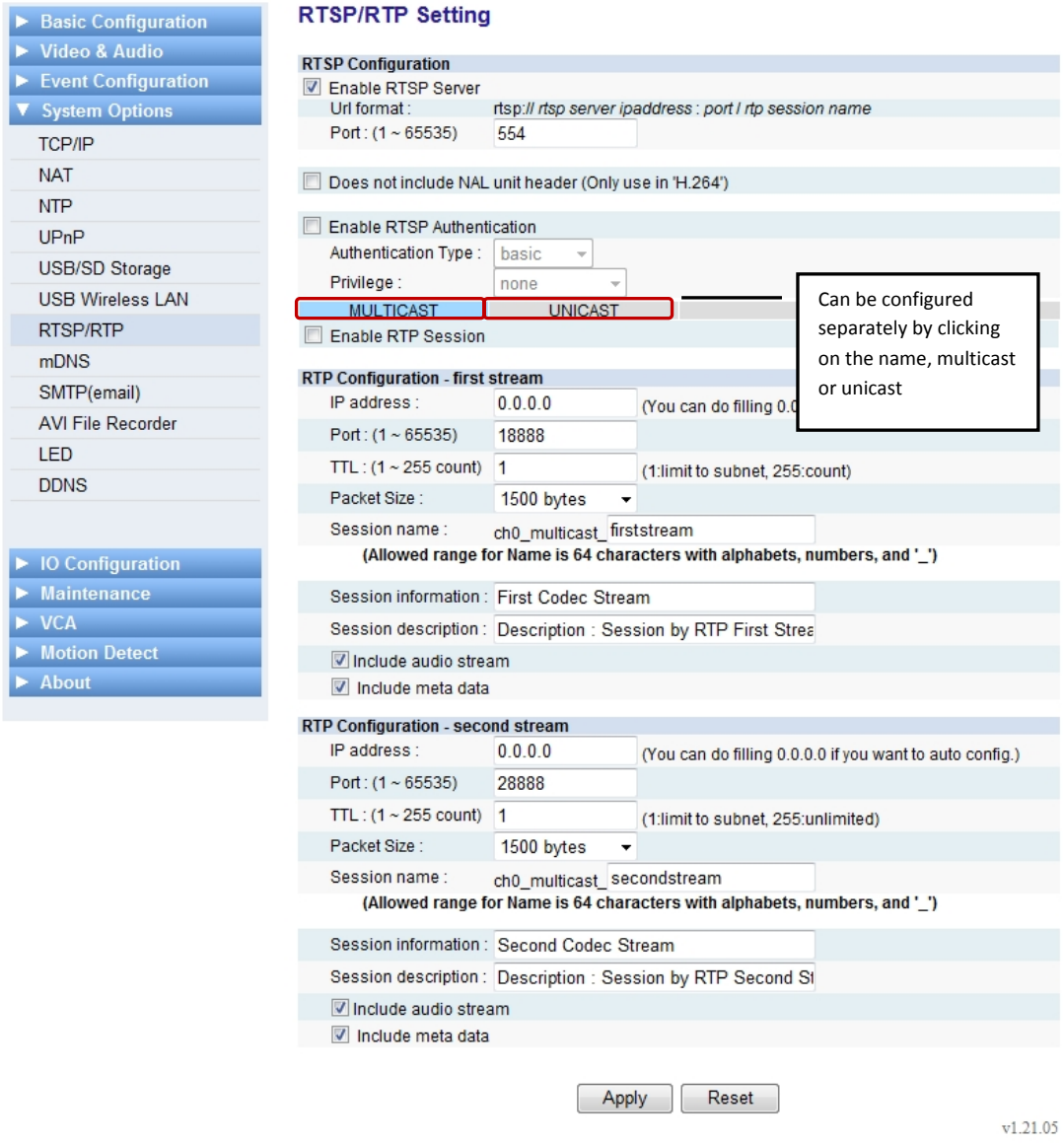
6. Wait about 30~40 seconds to switch the wireless mode.

NOTE : Switching time between wired and wireless modes may take longer than expected according to the network connections.

NOTE : When rebooting the device with wireless mode, device's boot time may be increased to 4~5 minutes.

NOTE : If the wireless LAN is not connected successfully, make sure the USB wireless LAN card is mounted on the unit properly. Click 'Refresh Network List' button and try to search network devices again. Please check out the step1 and step2 again.

4.5.7. RTSP/RTP (multicast or unicast)


Basic Configuration
Video & Audio
Event Configuration
System Options
TCP/IP
NAT
NTP
UPnP
USB/SD Storage
USB Wireless LAN
RTSP/RTP
mDNS
SMTP(email)
AVI File Recorder
LED
DDNS
IO Configuration
Maintenance
VCA
Motion Detect
About
RTSP/RTP Setting
RTSP Configuration
Enable RTSP Server
Url format : rtsp:// rtsp server ipaddress : port / rtp session name
Port : (1 ~ 65535) 554
Does not include NAL unit header (Only use in 'H.264')
Enable RTSP Authentication
Authentication Type : basic
Privilege : none
MULTICAST
UNICAST
Enable RTP Session
Can be configured separately by clicking on the name, multicast or unicast
RTP Configuration - first stream
IP address : 0.0.0.0
Port : (1 ~ 65535) 18888
TTL : (1 ~ 255 count) 1 (1:limit to subnet, 255:count)
Packet Size : 1500 bytes
Session name : ch0_multicast_ firststream
(Allowed range for Name is 64 characters with alphabets, numbers, and '_')
Session information : First Codec Stream
Session description : Description : Session by RTP First Strea
Include audio stream
Include meta data
RTP Configuration - second stream
IP address : 0.0.0.0 (You can do filling 0.0.0.0 if you want to auto config.)
Port : (1 ~ 65535) 28888
TTL : (1 ~ 255 count) 1 (1:limit to subnet, 255:unlimited)
Packet Size : 1500 bytes
Session name : ch0_multicast_ secondstream
(Allowed range for Name is 64 characters with alphabets, numbers, and '_')
Session information : Second Codec Stream
Session description : Description : Session by RTP Second St
Include audio stream
Include meta data
Apply
Reset
v1.21.05

GANZ H.264 Network camera and encoder support the multicast and unicast streaming for both of 1st stream and 2nd stream. Click the tab of MULTICAST and UNICAST as the picture above shows and configure the RTP session as required by your network system.

RTSP Configuration

To start the data streaming such as video, audio or metadata from the GANZ encoder and network camera server, tick the box of *Enable RTSP Server*. If you remove the check in the box, the streaming stops from server and the real time view is not seen on the web page.

Below is the requesting format of URL and Port for RTSP streaming. Each of IP address, port, and session name are open to be typed by user.

rtsp:// rtsp server ipaddress : port / rtp session name
port : 554

e.g. rtsp://192.168.111.32:554/ch0_unicast_firststream

NAL unit option

The option of "*Does not include NAL unit header (Only use in 'H.264')*" is required only when the codec is H.264. GANZ ENCODER AND NETWORK CAMERA supports both of non-standard H.264 and standard. The 'non-standard' means the video stream packet includes the NAL unit header additionally.

The factory default setting : Non standard format
So, if you want the standard format of H.264, you should tick this option.

For your information

- **NAL Stream**: The stream consists of only NAL units (H.264 standard format)
- **Byte Stream**: The sequence identifier, NAL header, is included between NAL streams

The data structure of byte stream

I	SPS	I	PPS	I	IDR	I	P SLC	I	P SLC	…	…	I	IDR	I	P SLC	…	…

I : Sequence Identifier
SPS : Sequence Parameter Set
PPS : Picture Parameter Set
IDR : IDR Slice
P SLC : P slice

You can refer to the 'GANZ ENCODER AND NETWORK CAMERA media data manual' in the SDK for more information about the video format of GANZ ENCODER AND NETWORK CAMERA series.

RTSP Authentication

If you want to use the authentication process for getting the RTSP streaming from GANZ ENCODER AND NETWORK CAMERA, you can choose one of the options.

Authentication type
Basic : It uses simple way of encryption of ID and PW with clear text
Digest : It uses more enhanced way of encryption.

Please refer to the http://www.faqs.org/rfcs/rfc2617.html for more information about the authentication of clients using basic and digest.

Privilege
You can use one of the user groups for RTSP Authentication.

RTSP configuration for MULTICAST

NOTE : If you have decided the communication way between multicast and unicast, the option is applied to both of first stream and second stream on the web page. BUT, each of the 1st stream and 2nd stream can be configured with different way by HTTP API. Refer to the NVC HTTP API manual.pdf in the SDK.

IP Address
In order to get the streaming data from GANZ ENCODER AND NETWORK CAMERA, you should set the IP address of group which is used for PC to join. '0,0,0,0' is configured as a factory default and it enables router program to generate the available IP for GANZ ENCODER AND NETWORK CAMERA automatically. If you want to use any specific address, type the address in the blank.

NOTE : UDP/RTP multicast is not allowed for streaming even if the address and the port information is known.

How auto configuration of IP address works?
As the session name for each RTP session is defined already on the server, your PC can get the stream by the 'rtsp:// rtsp server ipaddress : port / rtp session name' without the manual decision of IP address on the webpage.

Port
Set the port number used for router to receive the streaming data from GANZ ENCODER AND NETWORK CAMERA (No need for unicast). '18888' is set for video data of 1st stream and '28888' is for video data of 2nd stream. Refer to the 'Ports list for GANZ ENCODER AND NETWORK CAMERA connection' at the end of this section4.5.6.

TTL
Set the TTL value. If you set 1 for TTL, it means the packet will pass only in a subnet (No need for unicast).

What is TTL?
It's the abbreviation of Time to live. If data is sent out from GANZ encoder via network and all of the packets are alive permanently on the network, it will cause the big network load. TTL helps to reduce the network load by controlling the time of staying on network. For example, if you set the TTL as 50, the data will be deleted after passing by 50 routers.

Packet Size
Select the packet size you want. You should consider the proper packet size according to your network bandwidth. If your network allows you enough bandwidth for GANZ ENCODER AND NETWORK CAMERA connection, you can set higher size. The factory default is 1500 bytes.

Session name
Type the session name. The allowed range for the session name is 64 characters with alphabets, Arabic numbers, and under bar(_).

Session information
Type the session information you want to display.

Session Description
Type the session description for more detailed information.

Include audio stream
Check this box if you want to include the audio stream as well as video stream. For your information, video stream is the fundamental stream whenever you request the RTSP stream as a factory default.

Include meta data
Meta data contains the motion detection and VCA (video contents analysis) data. Check this box if you want to include the meat stream as well as video stream. For your information, video stream is the fundamental stream whenever you request the RTSP stream as a factory default.

NOTE : Refer to the ‘ Media Data manual.pdf’ for analyzing the stream of video, audio or meta data.

RTSP Configuration for UNICAST

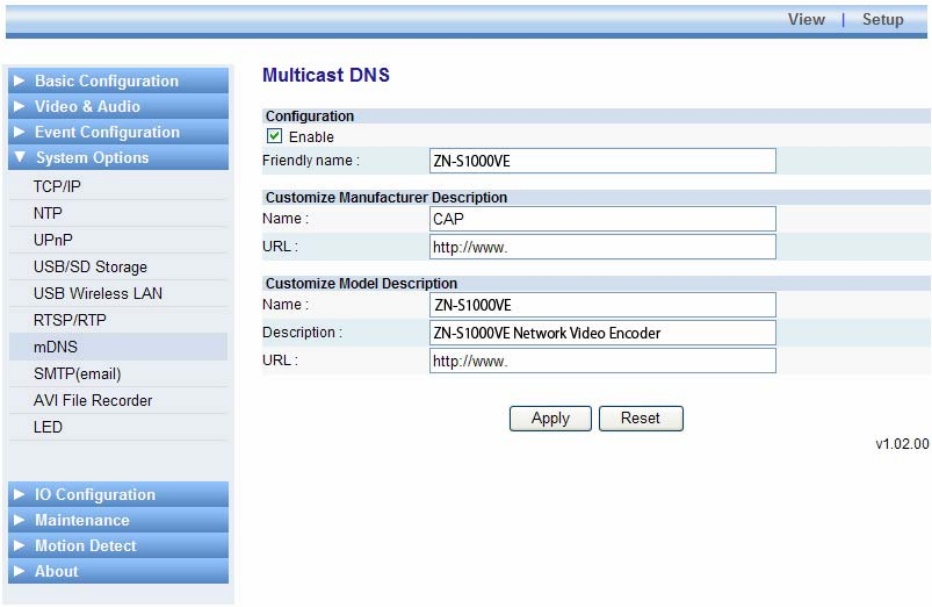
It is same as the configuration of multicast stream except for the items below.

Only for multicast system: IP Address, Port, and TTL

Ports list for GANZ ENCODER AND NETWORK CAMERA connection

Refer to the document ***TE0301 Ports list for protocol.pdf*** for detailed information about port number. It is found in the SDK (\DOC)

4.5.8. Setting property for mDNS (Multicast DNS)



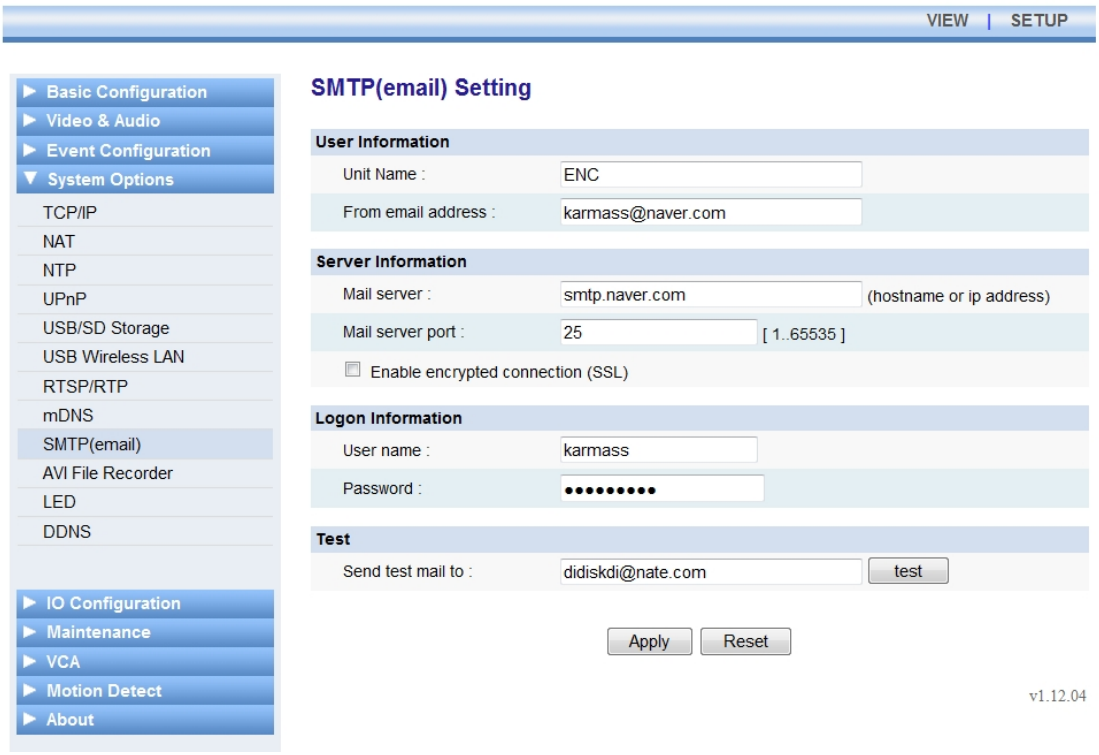
If you have your own program or device which is required to use the mDNS, this page helps you to customize the name of model and manufacturer instead of factory default.

Configuration
If you check the box of 'Enable,' mDNS is activated. You can type the Friendly Name to be shown on the application program.

Customize Manufacturer Description
You can type the manufacturer's name and home URL of your NVC. 'CBC' is typed as a default for the name but it is adjustable as you want.

Customize Model Description
You can type the model name, description of the model and URL of your NVC. 'ENC is typed as a default for the name but it is adjustable as you want.

4.5.9. Setting SMTP



You can set the user's mail account and server to apply this SMTP for event or any other SMTP required purpose.

Configuring user information

Unit Name
Type the friendly NVC server name to show on e-mail and it helps you to distinguish the devices from other devices when you use multiple network video servers.
Input range: 40 characters limit

From email address
Type the e-mail address of a sender.
Input range: 128 characters limit

Configuring server information

Mail server
In order to send the e-mail message, NVC needs the information of user's mail server. Type the Mail server with the host name or IP Address. If you use the host name, it requires the DNS registration in advance. Check the DNS setting on System Options – TCP/IP tab.
Input range: 128 characters limit

Mail server port

Type the mail server's port number with the range from 0 to 65535.

NOTE : If your email server requires encryption process of SSL and TLS?
Check '***Enable encrypted connection (SSL)***' box. TLS (Transport Layer Security) and SSL (Secure Sockets Layer) algorithm can be required for the security of communication over networks. It depends on your email server and you should check out the communication protocol of SMTP server.

Logon Information

User name
Input range: 128 characters limit

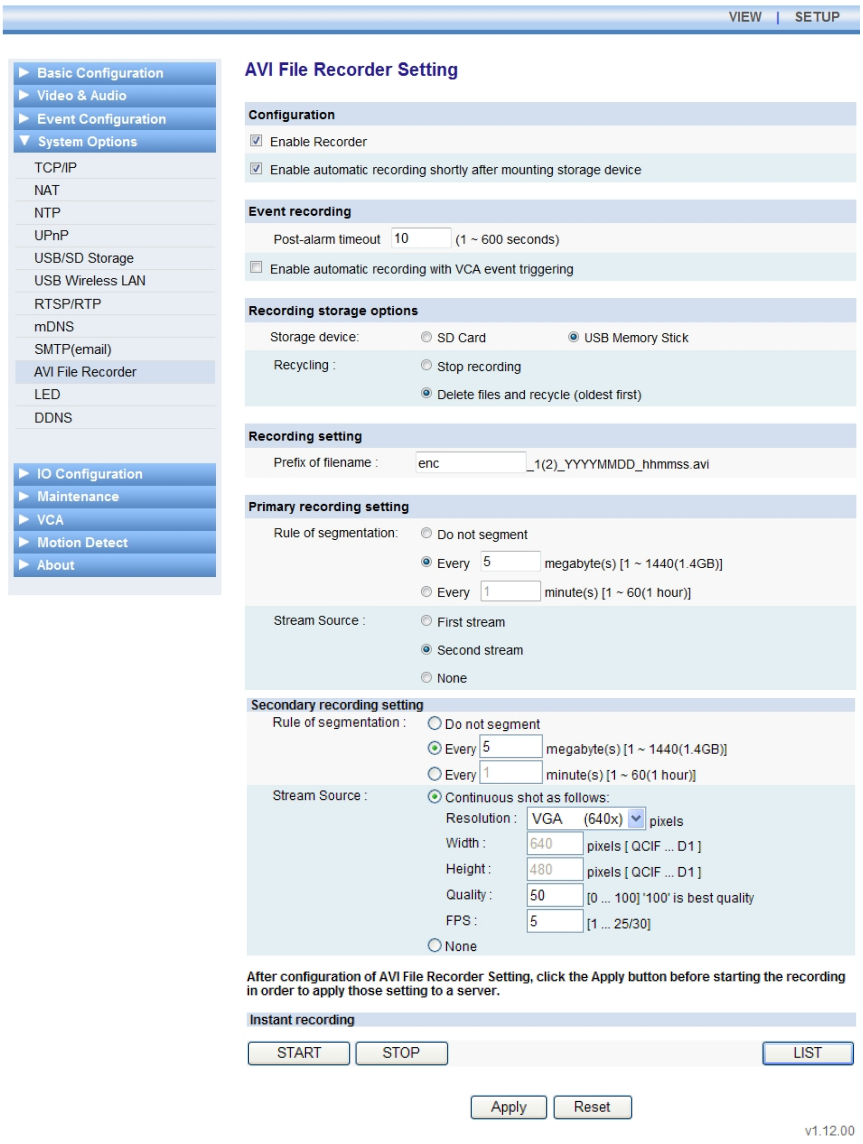
Password
Input range: 32 characters limit

Test with current configuration

You can check out in advance if the e-mail account is available or not with the 'test' button. Type the e-mail address and click the test button. If you have seen the message below, you should set the DNS first at [System Option] – [TCP/IP] menu.

If you have seen the message below, the entered mail account is valid.

4.5.10. Recording & Playback with USB/SD storage



Steps for manual recording

Step 1. Enable recording

If you want to record the data, the box of *Enable Recorder* must be checked. If not, the data is not recorded even if you click the START button.

Enable automatic recording shortly after mounting storage device
It allows the recording get started automatically as soon as storage device is mounted. If you remove the tick, the recording will be started only when you command of recording manually.

Step 2. Selecting the recording storage

You can choose one of the recording storage devices, SD card or USB Memory.

Step 3. Recycling options

You can choose one of the options when the storage is full of data

- Stop recording: Stops recording and keep the recoded data.
- Delete files and recycle (oldest first) : Replace old files with newly created files.

Step 4. Decision of filename

Type the file name that ends with _YYYYMMDD_hhmmss.avi. For easier recognition of multiply created files, the end of every recording file name includes the date and time information as a default.

Step 5. Segmentation of files

- Check the 'Do not segment' if you want to create the recording data as one file.
- Segmentation by file size: Type the size of file. The range of the file size is from 1 to 1440 Megabyte(s).
- Segmentation by time base: Type the minutes to segment. The range of the file size is from 1 to 60 minute(s).

Step 6. Selecting stream source for primary option

You can choose primary recording source from either 1st stream or 2nd stream. It's not allowed to record both of them at the same time. If you check 'None', the GANZ ENCODER AND NETWORK CAMERA does not record neither of 1st stream nor 2nd stream.

Option. Recording secondary stream (snapshot stream)

Why secondary recording is required?

As you have found on the GANZ ENCODER AND NETWORK CAMERA specification, GANZ ENCODER AND NETWORK CAMERA supports the multiple streams. For each of camera input source, the GANZ ENCODER AND NETWORK CAMERA is able to generate 1st stream, 2nd stream, and Snapshot stream, which is called triple stream. The secondary recording setting is prepared for the 'snapshot stream'. Regardless of the codec type of 1st or 2nd stream, the snapshot stream can be generated and recorded separately.

Do not want to record the snapshot stream?

Select None at the end of stream source options.

Selecting the stream source for recording

Secondary recording is prepared for the users who want to record the stream of snapshot. This is operated separately from the primary recording and you can get the continuous shot with JPEG format. Set the resolution, quality and fps of the recoding image.

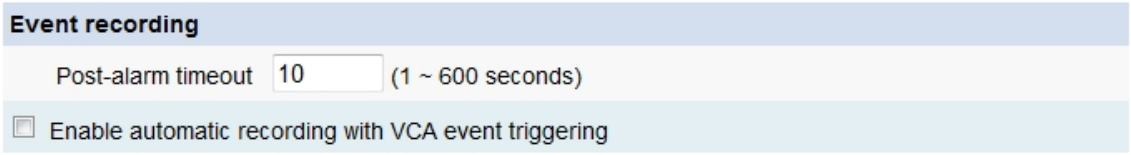
Customizing the resolution

If you choose CUSTOM as the value of the resolution, you're able to set the image size as you want regardless of the fixed standard size. Type the pixels in the fields of width and height.

Step 7. If you have finished the setting above, click the Apply button to save and apply the setting.
Step 8. Now, click *START* or *STOP* button to start or stop recording.

Steps for VCA event recording

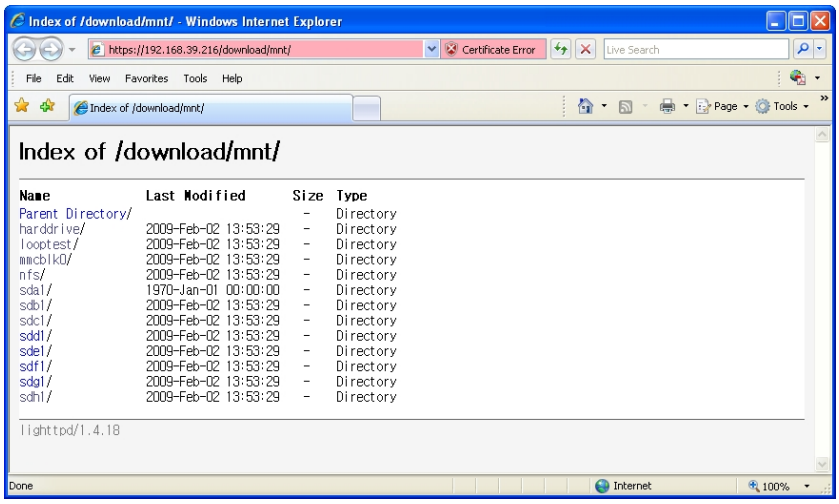
All of configuration is the same as manual recording but optionally, you have to set up 'Event Recording' tab.



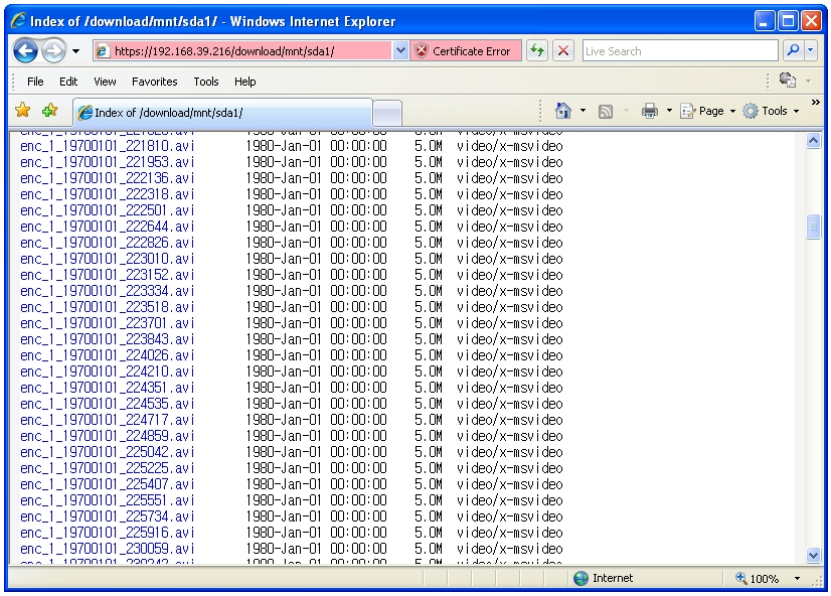
Step 1. Set the time of post-alarm recording. Then, when VCA event is triggered, the images will be recorded for the configured time only.
Step 2. Check the box of 'Enable automatic recording with VCA event triggering' to enable the VCA event recording.

How to play back the recoding file on the webpage

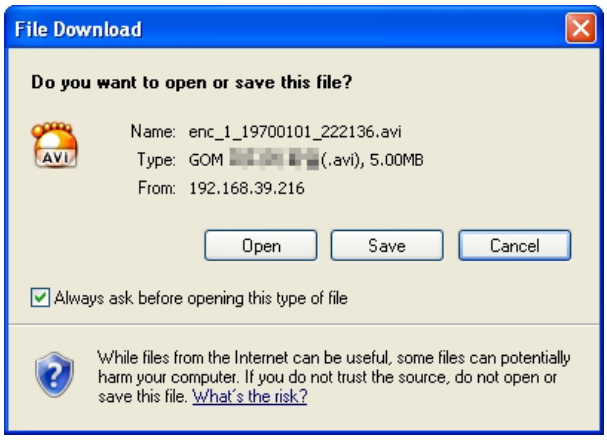
1. Click the LIST button at the bottom of the page.
2. Then, you can see the new window is opened as below. The created directories are listed on the web page.



3. Click one of the directories you want. Then, you can see the recording files are listed.

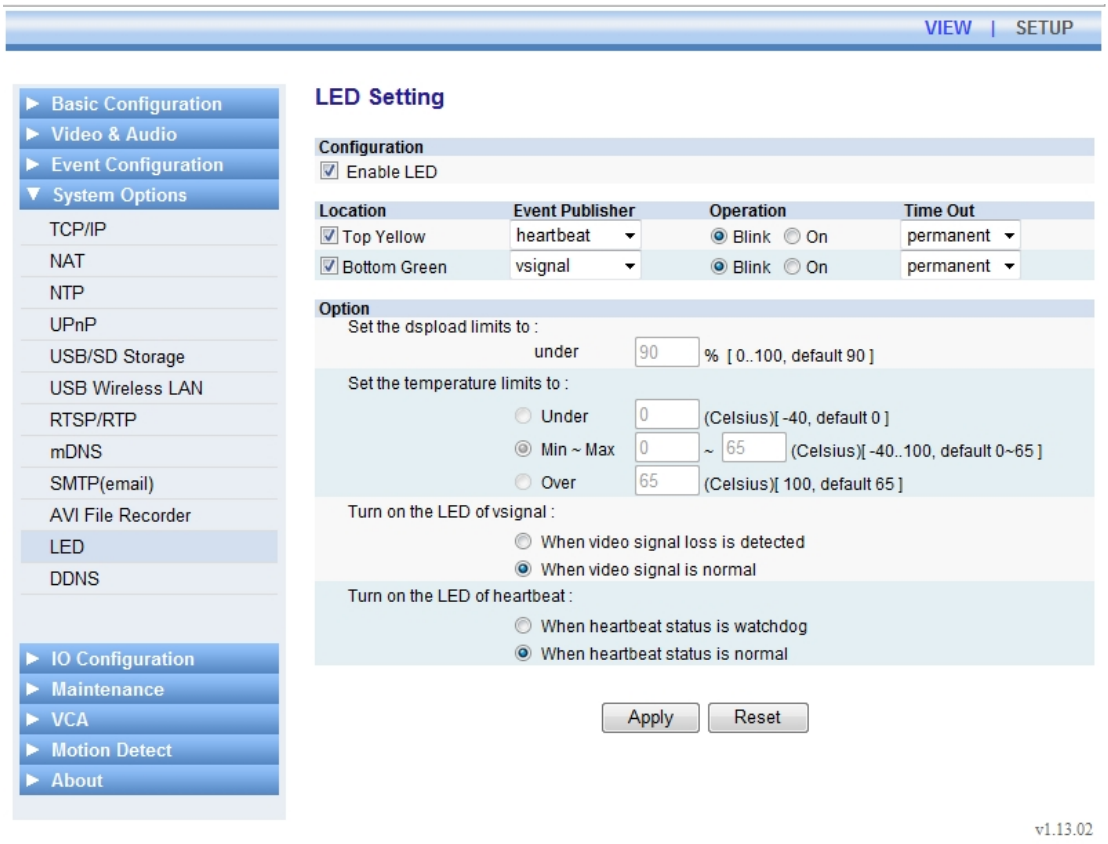


4. Click the file you want to open. Then, the download window appears as below. You can open or save the file on your local disk.


File Download
Do you want to open or save this file?
Name: enc_1_19700101_222136.avi
Type: GOM [redacted](.avi), 5.00MB
From: 192.168.39.216
Open
Save
Cancel
Always ask before opening this type of file
While files from the Internet can be useful, some files can potentially harm your computer. If you do not trust the source, do not open or save this file. What's the risk?

4.5.11. LED Setting

NOTE : This LED setting page is based on ZN-S1000VE and this page can be different according to your GANZ ENCODER AND NETWORK CAMERA model type. Refer to the chapter 6. REFERENCE TO MODELS.



You can customize the LED operation according to your system requirement. Please refer to the example scenario first.

Example of configuration

Scenario :
"When the video signal loss is detected, let top LED blink for every 5 seconds"

Setting :
Top Yellow - Ticked
Event Publisher - vsignal
Operation - Blink
Time Out – 5
Option – Turn on the LED of vsignal : Select 'When video signal loss is detected'.

Basic configuration

1. Check the 'Enable LED' box to enables the LED function.
2. Select the 'Event Publisher' you want to apply for the TOP yellow / Bottom green LED.

3. Select the 'Operation Type' of each LED, Blink or On mode.
4. Select the 'Time Out', among 1 ~ 5 sec or permanent alarming.

Location of LED
In case of ZN-S1000VE, you can find that there are 2 LEDs on the left side of the video input port. Each of GANZ ENCODER AND NETWORK CAMERA series has different position of LEDs and you should refer to the 'Hardware Installation guide' of your model (Refer to the \DOC of your SDK)

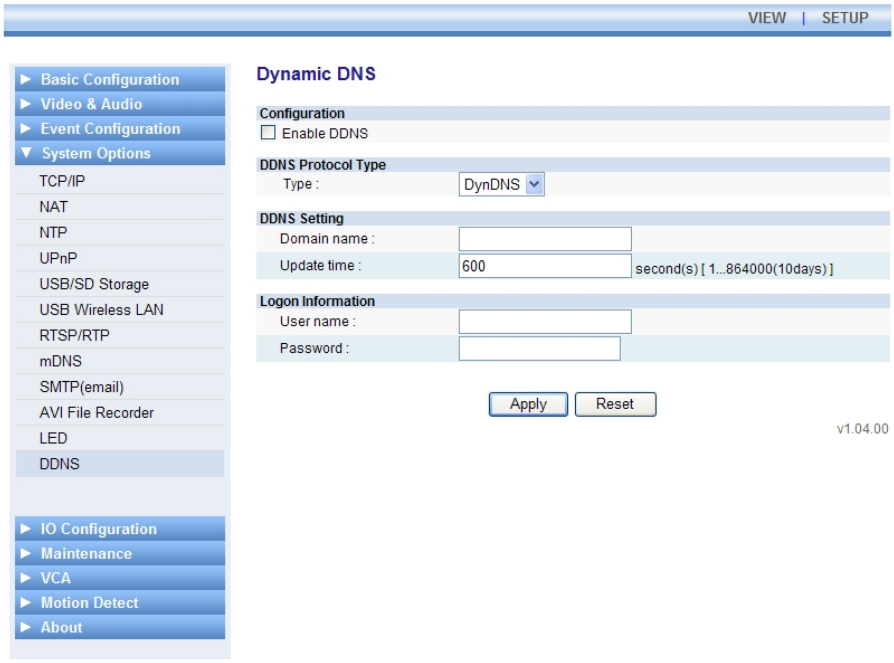
If you are configuring DSP load, temperate, and video signal loss?

The option page provides the configuration of DSP load, temperature change, and video loss.

(1) Set the dspload limits to
E.g. Setting the value as 90% - While the DSP load keeps lower than 90%, the LED will operate as you configured at Location tab.
(2) Set the temperature limits to
E.g. Setting the min 0 and max 65 - While the temperature is between 0 and 65, the LED will operate as you configured at Location tab.
(3) Turn on the LED of Vsignal
Select one of the options between 'When video signal loss is detected' and 'When video signal is normal'. Then, the selected LED will operate when the selected condition is satisfied.
(4) Turn on the LED of Heartbeat
Select one of the options between 'When heartbeat status is watchdog' and 'When heartbeat status is normal'. Then, the selected LED will operate when the selected condition is satisfied.

NOTE :
For more details about the publisher's triggers condition, refer to the 'NVC Event System Manual.pdf' in the SDK. It describes the threshold for event triggering, event message format, and triggering condition etc.

4.5.12. DDNS (Dynamic DNS)



1. Check the 'Enable DDNS' box.
2. Select the protocol type you want.

NOTE : Only DynDNS is installed. Ask UDP support team for adding more servers.

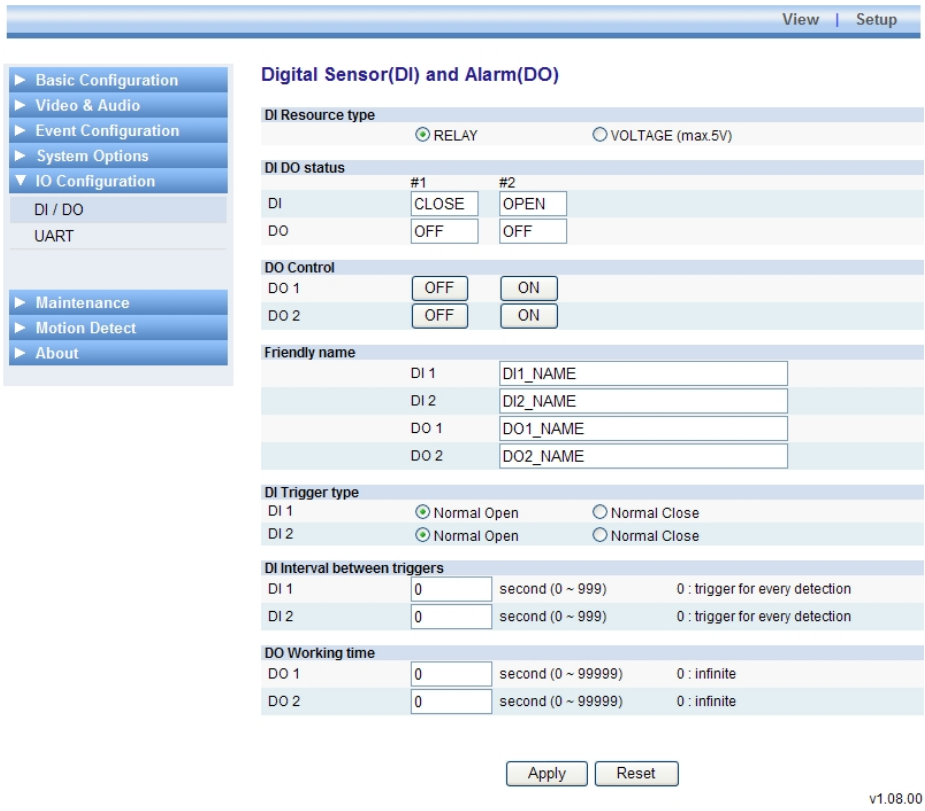
3. Type the domain name you want to use for the GANZ ENCODER AND NETWORK CAMERA.
4. Type the update time. The factory default is 600 seconds and it enables the GANZ ENCODER AND NETWORK CAMERA notify the DDNS of the current domain name.
5. Type the user name and password of your DDNS account.
6. Click Apply button.

4.6. IO CONFIGURATION

4.6.1. DI/DO control

NOTE : This DI/DO setting page is based on 1 channel encoder, ZN-S1000VE. If your camera or encoder model is other than ZN-S1000VE, move to the chapter '6.REFERENCE TO MODEL' and you can refer to the different part only from this page.

If you should install the additional device such as alarm system or sensor system, you can configure the DI (Digital Input) and DO(Digital Out) in this page.



DI Resource Type

You can choose the DI resource type, RELAY or VOLTAGE (The maximum is 5V).

DI & DO Status

It reflects the current states of actual DI and DO. In case of ZN-S1000VE, 2 of DI and DO are supported for each. Refer to your GANZ ENCODER AND NETWORK CAMERA model specification for supported number of DI and DO.

Scenario Example

When it's assumed that DI#1 and DO#1 are coupled by event system. The DI#1 trigger type is Normal Open. Suddenly DI#1 is triggered by any kind of event.

Expected Response – The status of DO#1 will be changed from OFF to ON, if the default setting is OFF. The status of DI#1 will be changed from OPEN to CLOSE.

DO Control

If you want to test DO operation manually on the webpage, click the soft buttons of OFF and ON. Then, you can see that how DO works. These commands also affects the 'DO status' because the 'DO status' shows the current status of DO.

Friendly Name

You can type any friendly name for DI and DO. This setting helps you to identify which DI or DO is activated especially when you have multiple NVC servers on your application program.

DI Trigger Type

You can select the trigger type between normal open (NO) and normal close (NC).

DI Interval between triggers

It is the detection time interval for event publishers. For example, if '0' is typed, it generates events every time for DI detection. But if '10' is typed, that means even if multiple DIs are detected for 10 seconds, they will trigger only 1 event for that 10 seconds.

DO Working Time

It is about the working time of the DO.
For example, if '0' is typed, DO device keep working until a user turns it off manually. If '10' is typed, DO device will work for 10 seconds and will finish the operation.

4.6.2. UART setting for serial device

NOTE : This UART setting page is based on 1 channel encoder, ZN-S1000VE. If your camera or encoder model is other than ZN-S1000VE, move to the chapter '6.REFERENCE TO MODEL' and you can refer to the different part only from this page.

UART1 – RS485 only supported

Internal
RS485-PTZ : Used when you attach a PTZ camera to the NVC series.
RS485-AUX : Used when you attach any auxiliary device which requires serial communication to the NVC series.
RS232-PTZ : Not supported for UART1 port
RS232-AUX : Not supported for UART1 port

Why distinguish between RS485-PTZ and RS485-AUX?
When the RS485-PTZ is selected, the required PTZ protocol and the control daemon are run and assigned to the serial communication internally.

External
When 3rd party program is added to the server side of NVC and this add-on program needs to control the attached serial devices, you should select the external option. So, if you do not use any serial control program, you can ignore this option.
RS485-AUX : When add-on program for RS485 communication is required
RS232-AUX : Not supported for UART1 port

UART2 – RS232C only supported

Internal
RS232-PTZ : Used when you attach a PTZ camera to the NVC series.
RS232-AUX : Used when you attach any auxiliary device other than PTZ camera.

Why distinguish between RS232-PTZ and RS232-AUX?

When the RS485-PTZ is selected, the required PTZ protocol and the control daemon are run and assigned to the serial communication internally.

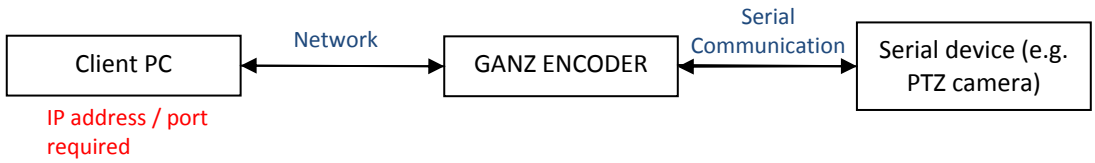
External

When 3rd party program is added to the server side of NVC and this add-on program needs to control the attached serial devices, you should select the External option. So, if you do not use any serial control program, you can ignore this external option.

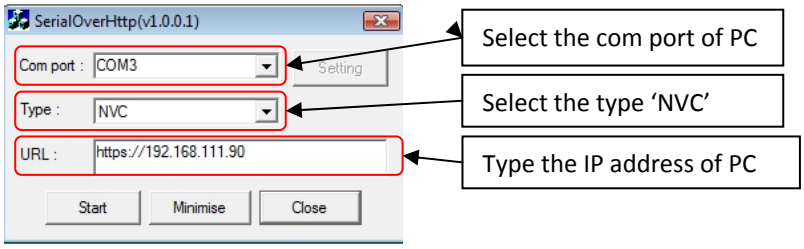
SerialOverIP

What is SerialOverIP?

When you want to read/write the serial data from attached serial device over the network, you can select this 'SerialOverIP' option. Refer to the drawing below for more specific schema.



You can find the test tool for SerialOverIP at \BIN\TOOLS\ SerialOverHttp.exe of NVC SDK.



NOTE : This tool is designed to test a 'writing only' for data sending from PC to NVC. For the opposite direction (from NVC to PC), you should use another program or use HTTP API. NVC HTTP API Manual.pdf at \DOC of NVC SDK will help you to use HTTP API of serial data communication. Refer to the section 0.6.3. Serial2.fcgi.

PTZ Protocol

PTZ Name : You need to set the UART type as RS485-PTZ before selecting the PTZ protocol. If you click the drop down box of PTZ name, the available protocols are listed. Choose the required protocol to communicate with your camera.

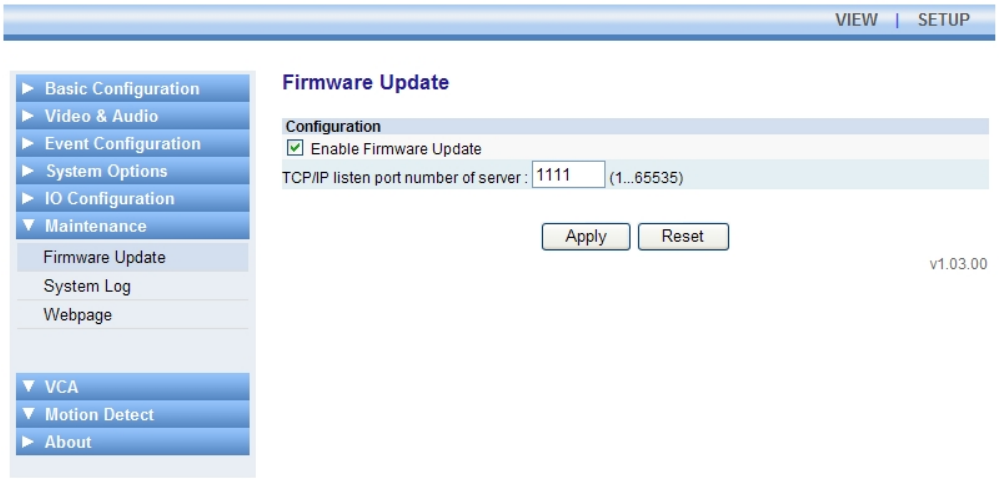
PTZ Address : Type the PTZ address as you have set on your PTZ camera. You may find the dip switch at the bottom of the PTZ camera which enables the cameras to have their own address. Refer to your PTZ camera hardware manual for the PTZ address setting.

Baud Rate, Data, Parity, Stop, Flow Control

These settings are necessary when you want your serial device to be communicated with the GANZ ENCODER AND NETWORK CAMERA series. The default values of web page are set for the RS485 PTZ device but you can set the values according to your own device requirement.

4.7. MAINTENANCE

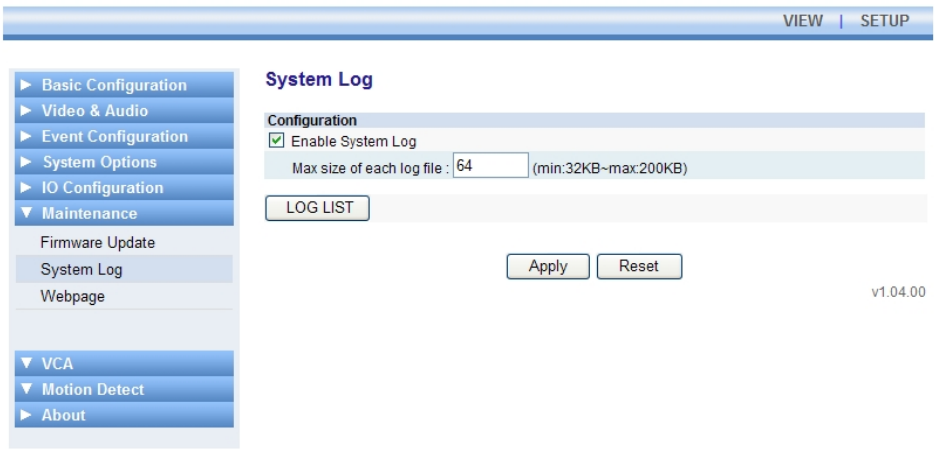
4.7.1. Firmware Update port setting



Firmware update is allowed only by the ZNS-GIT IPAdimn Tool.exe, which is provided in the SDK (\BIN\TOOLS\AdminTool vX.X.X.X). Refer to the '*NVC Tools User's Manual.pdf*' to find out how to update the firmware on your GANZ ENCODER AND NETWORK CAMERA.

Before you upload the firmware with ZNS-GIT IPAdimn Tool.exe, check the 'Enable Firmware Update' box and set the port number. If you remove the check this box, updating the firmware is not allowed.

4.7.2. Getting system Log

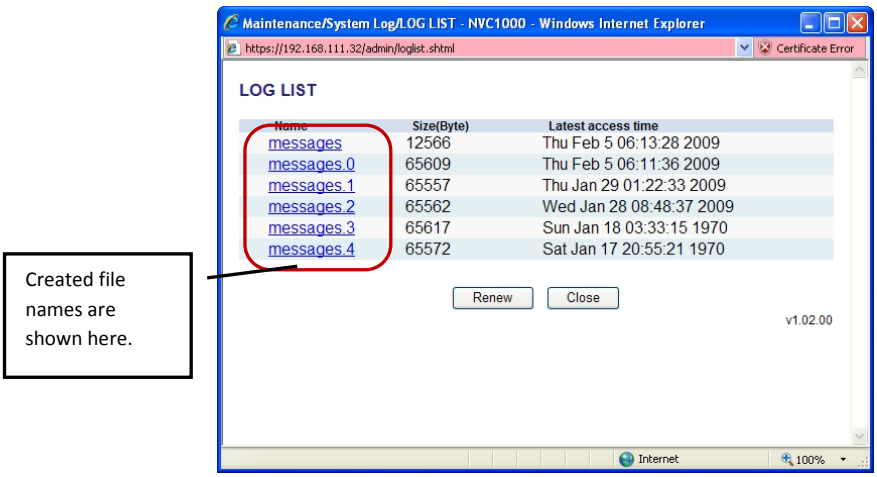


In order to get the system log of GANZ ENCODER AND NETWORK CAMERA series, please follow the steps of below.

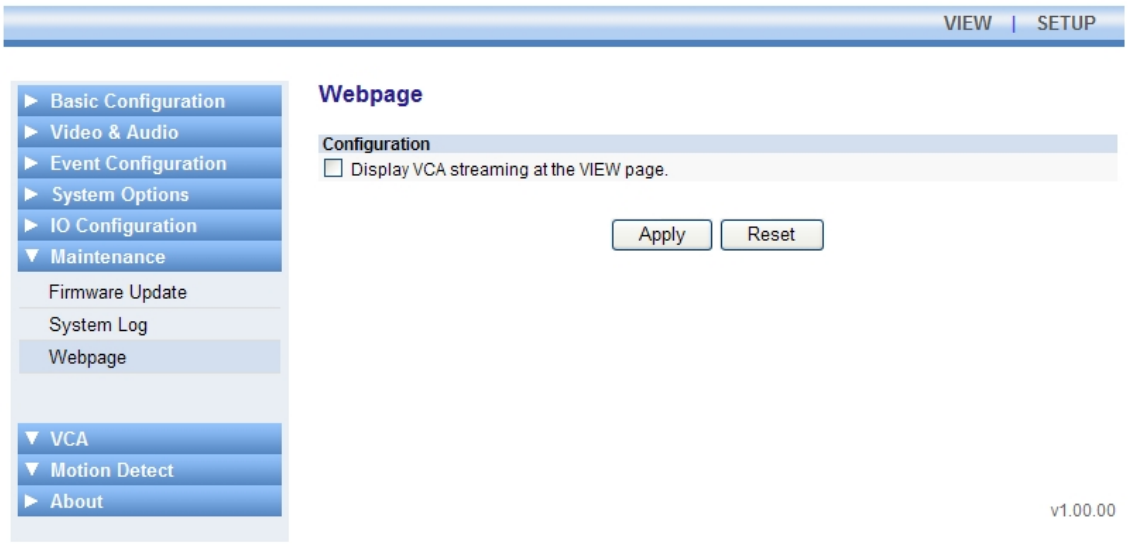
1. Check the 'Enable System Log' box
2. Type max size of file between 32KB and 200KB. Then, the log files will be created according to the fixed size (Up to 5 files are created and the oldest file will be replaced by the latest file).
3. Click Apply button and then the log file will be created.

If you want to see the log list, click the LOG LIST button.

Name : The log files are named automatically. It's not allowed for user to name it manually.
Size : Log file size is updated in real time.
Latest access time : Latest time when GANZ ENCODER AND NETWORK CAMERA accessed the internal system to get the log.



4.7.3. Webpage option for VCA

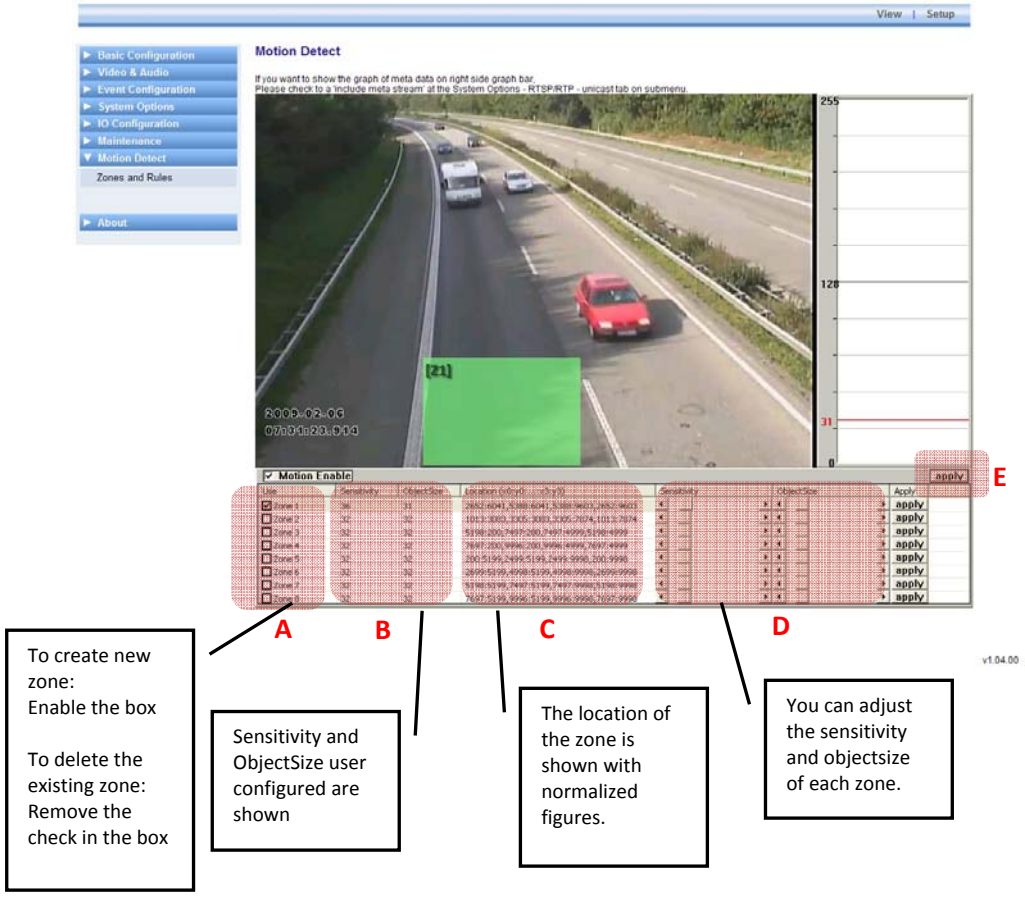


If you check the 'Display VCA streaming at the VIEW page', it enables you to get the Video Contents Analysis stream at the view page.

4.8. VCA

Refer to the separate documents, *VCAsys.chm* in the SDK (path : \DOC).

4.9. MOTION DETECTION



The picture above is the example of zone setting on the highway image.

How to configure the motion detection zones:

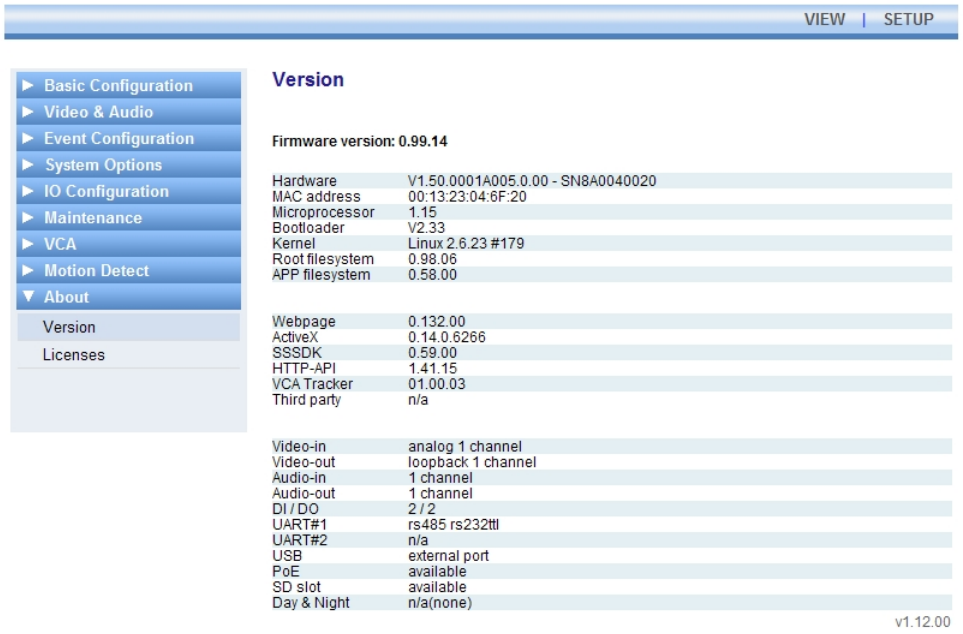
1. Check the box of section A to create new zone for motion detection (It supports up to 8 zones). If you want to remove the existing zone, remove the check of the box.
2. Adjust the sensitivity and objectsize of selected zone in the section D.
3. Click apply button for each zones on the right side.
4. If you have completed the configuration of zones with the step 1~3, check the Motion Enable box to enable the motion detection and click the apply button E.
5. Now, get out of the [Setup] page and go to the [View] page to see the activation of the zone configuration. When any motion is detected in the configured zone, the zone will flicker every time.

What is Sensitivity?
Every motion detection zone is divided into multiple squares, which is called ‘Macro blocks.’ And each of macro blocks consists of 16 x 16 pixels. The value of sensitivity means the sensitivity of each macro block. If you want to configure the zone less sensitive than the factory default, set the figure higher by dragging the bar of section D. Likewise, if you want to configure the zone more sensitive than the factory default, set the figure lower.

What is Objectsize?
The objectsize value means the proportion of the macro blocks which has exceeded the configured sensitivity. If you want to configure the zone less sensitive than the factory default, set the figure higher by dragging the bar of section D. Likewise, if you want to configure the zone more sensitive than the factory default, set the figure lower.

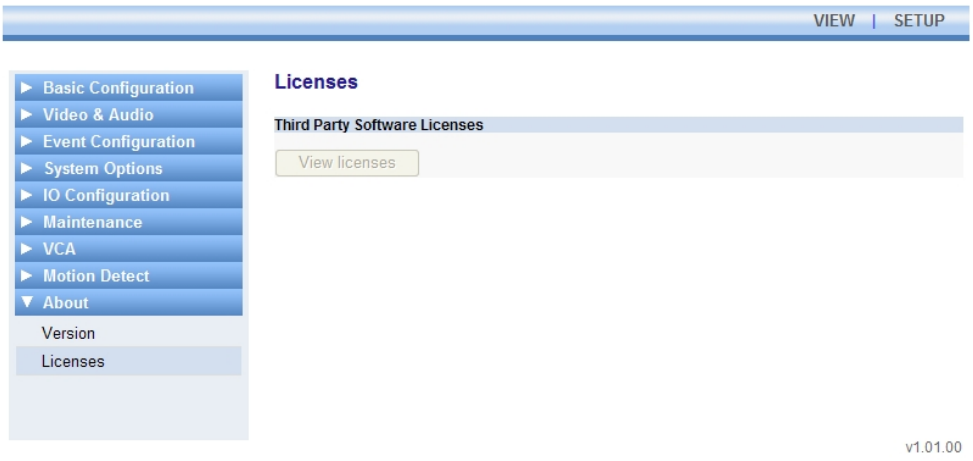
4.10. ABOUT

4.10.1. Version



You can find the information about the current firmware version on the top of the page. Hardware and software version information etc are found in this page as well.

4.10.2. Licenses



Third Party Software License
When you have added the third party software on GANZ encoder, you can use this page to check out the licenses.

5. SAFETY MODE

5.1. What is Safety Mode?

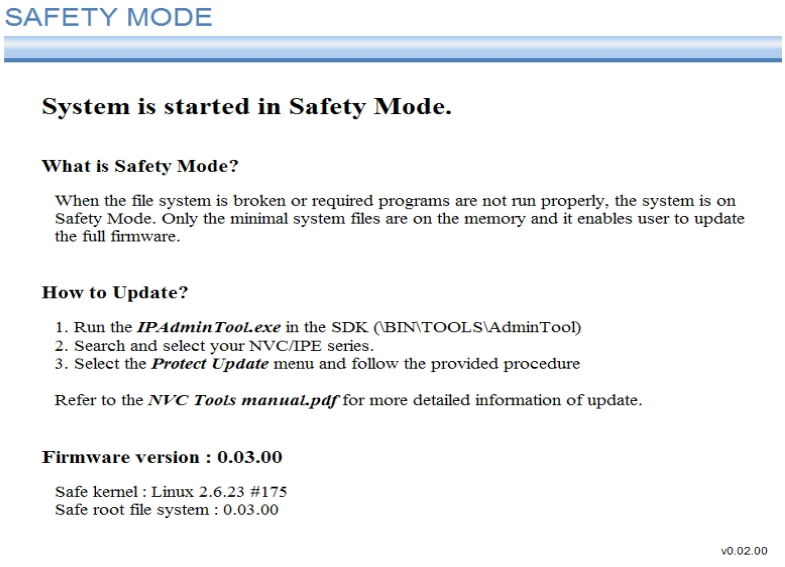
Your GANZ encoder and network camera system could encounter an unexpected occasion such as broken firmware file or uncompleted loading of firmware file during system booting. To restore the system after the emergency cases, GANZ encoder and network camra system provides the emergency firmware as a factory default. Your system will get restarted with Safety Mode when there is any error on your booting system files.

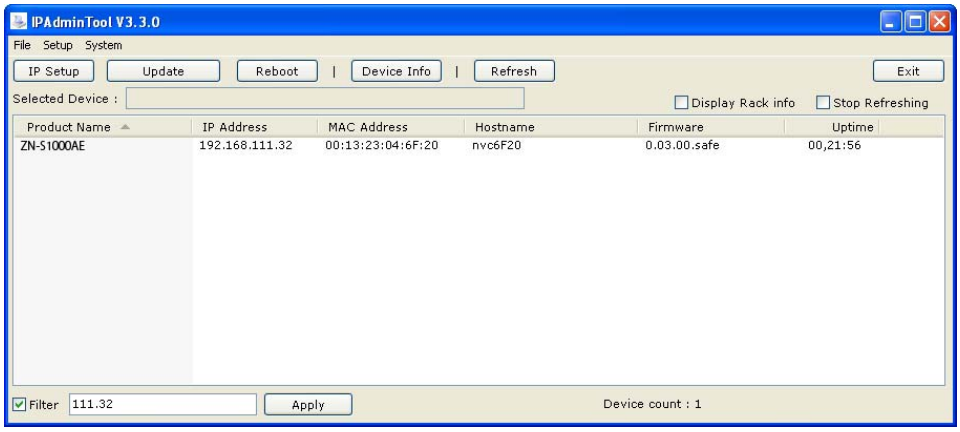
5.2. Why your GANZ encoder and network camera system boots in Safety Mode?

Normally, the cause of 'safety mode' is classified into 3 types.
* When the power supply is unplugged in the middle of system booting.
* When the firmware files required for system booting are damaged.
* When a user has not completed the booting files system and try to boot the system (Applied only for the case of Server Side SDK user)

IMPORTANT : GANZ ENCODER AND NETWORK CAMERA do not turn into the safety mode booting until 5 times of normal booting are tried.

5.3. How to recover your system from Safety Mode?


SAFETY MODE
System is started in Safety Mode.
What is Safety Mode?
When the file system is broken or required programs are not run properly, the system is on Safety Mode. Only the minimal system files are on the memory and it enables user to update the full firmware.
How to Update?
1. Run the IPAdminTool.exe in the SDK (\BIN\TOOLS\AdminTool)
2. Search and select your NVC/IPE series.
3. Select the Protect Update menu and follow the provided procedure
Refer to the NVC Tools manual.pdf for more detailed information of update.
Firmware version : 0.03.00
Safe kernel : Linux 2.6.23 #175
Safe root file system : 0.03.00
v0.02.00



If you see the screen below, that means your system has rebooted at 'Safety Mode' and you should follow the steps.
Click the 'Reboot' button on the webpage

1. Wait for about 1 minute until the system gets restarted at normal condition.
2. Try to access the webpage again and check out if it displays the webpage in normal.

If your system still keeps rebooting at Safety Mode even with the steps of above?
It means some parts of your firmware files on the system are damaged and not available any more. Please try the steps of below to recover the firmware file.

1. Run the ZNS-GIT IPAdimn Tool.exe program in the SDK (\BIN\TOOLS\AdminTooL). Then, you may find that your GANZ encoder and network camera is with 'Safety Mode' on the ZNS-GIT IPAdimn Tool as below.
2. Right-click at the device name and select the 'Update' menu.

NOTE : Please find the detailed instruction to update firmware, which is located at SDK (\DOC). The section '2.6. How to update firmware remotely by ZNS-GIT IPAdimn Tool' will guide you to understand the updating procedure.
If you have completed the firmware update, you can access the webpage and check out if your system boots in a normal booting mode.

5.4. Limited functions under Safety Mode

Though it varies by operating system, typically safe mode loads as few executable modules as possible and usually disables normal working of device.

Available functions

IP change by ZNS-GIT IPAdimn Tool
Scanning by ZNS-GIT IPAdimn Tool
Searched by UPnP program

Limited functions

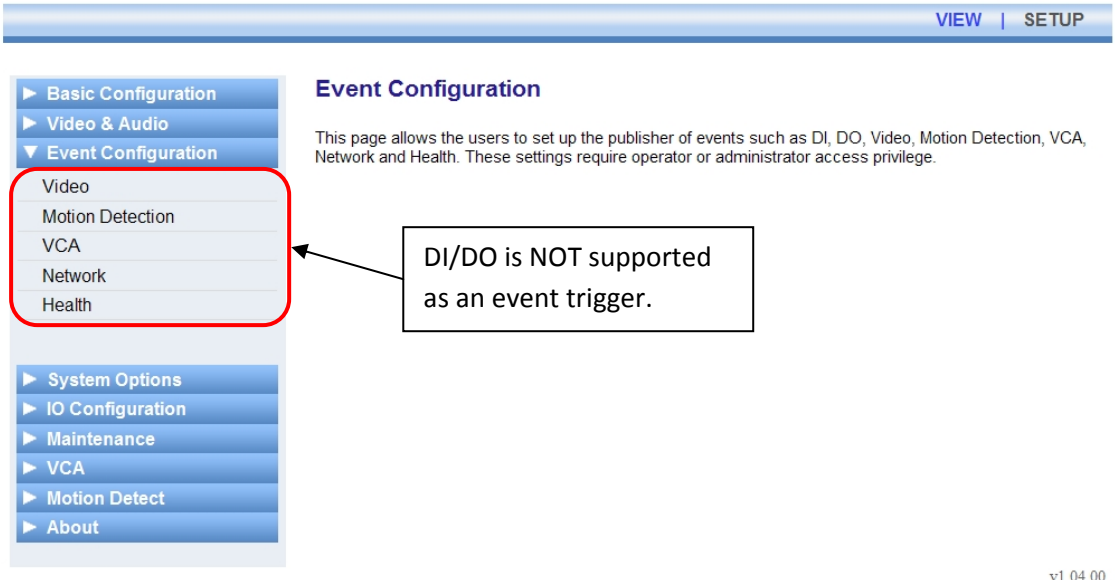
RTSP or HTTP streaming
Event messages or alarming
Recognition of HTTP API commands

6. REFERENCE TO MODELS

6.1. ZN-S100V

Event Configuration

Only Video, Motion Detection, VCA, Network, and Health are supported for the event publisher (DI/DO are NOT supported). Refer to the section 4.4. Event Configuration for the explanation of the event setting.



USB/SD Storage

USB/SD ports are NOT supported.

USB Wireless LAN

USB port for Wireless LAN is NOT supported.

DI/DO Control

DI/DO is NOT supported.

UART Setting for serial device

Serial communication available for users is NOT supported.

6.2. ZN-RS4000 SERIES

Video Input

TBD

Event Configuration

TBD

USB/SD Storage

TBD

USB Wireless LAN

TBD

DI/DO Control

TBD

UART Setting for serial device

TBD

6.3. Rack for GANZ encoder

4 separate modules are installed on each blade of ZN-RS4000 SERIES. And each of module works as ZN-S1000VE, 1channel encoder solution does in most of specification but some of functions are limited and refer to the explanation of the below.

Video Input

4 video inputs are supported and the user interface of video input per module is as same as ZN-S1000VE.

Event Configuration

Module 0: DI/DO are supported for event publisher
Module 1: DI/DO are supported for event publisher
Module 2: DI/DO are NOT supported for event publisher
Module 3: DI/DO are NOT supported for event publisher

USB/SD Storage

1 of USB storage per 1 blade is supported (module0)
SD is NOT supported

USB Wireless LAN

Module0 only supported

DI/DO Control

Module 0: 2 of DI / 1 of DO are supported
Module 1: 2 of DI / 1 of DO are supported
Module 2: DI/DO are NOT supported
Module 3: DI/DO are NOT supported

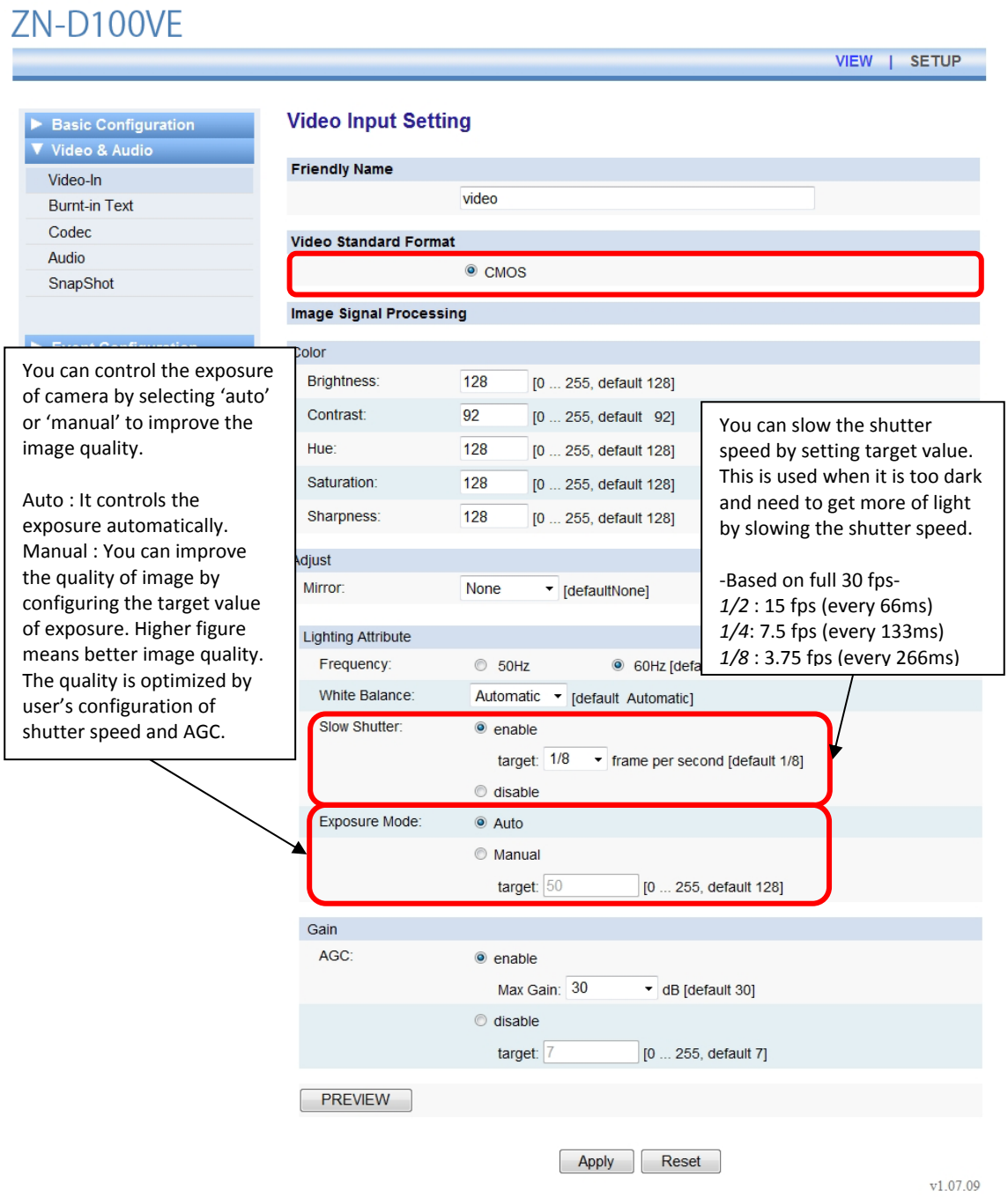
UART Setting for serial device

RS232C - Module0 only supported
RS485 - Module0 only supported

6.4. ZN-D100VE

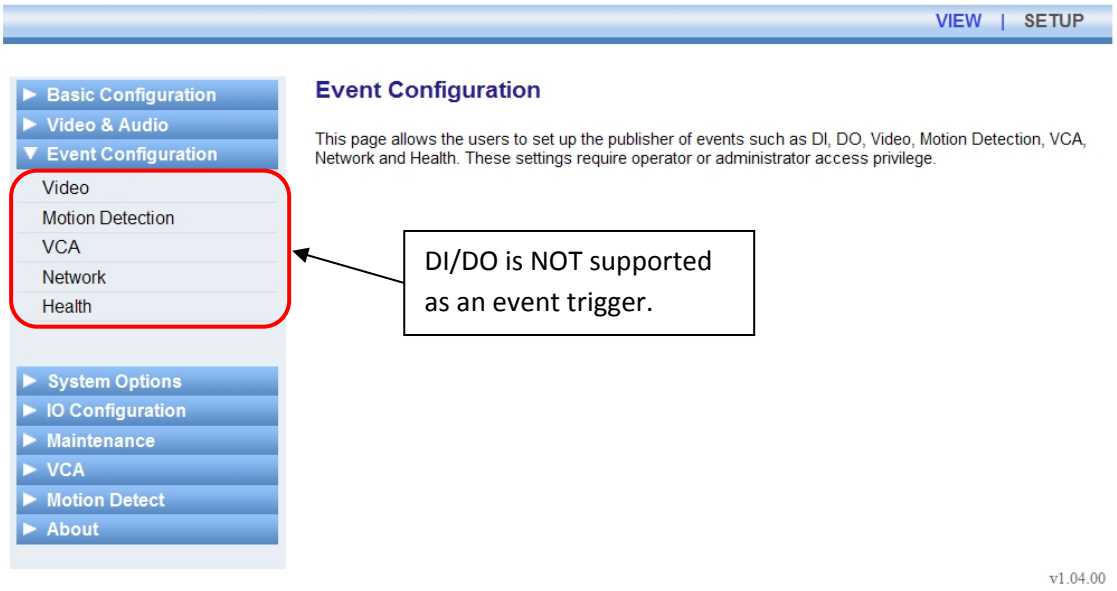
Video Input

The Video Standard Format of video input depends on the lens type of your ZN-D100VE. If your camera has the type of CMOS lens, the video standard format will show you CMOS selected configuration on the webpage.


ZN-D100VE
VIEW | SETUP
Basic Configuration
Video & Audio
Video-In
Burnt-in Text
Codec
Audio
SnapShot
Video Input Setting
Friendly Name
video
Video Standard Format
CMOS
Image Signal Processing
Color
Brightness: 128 [0 ... 255, default 128]
Contrast: 92 [0 ... 255, default 92]
Hue: 128 [0 ... 255, default 128]
Saturation: 128 [0 ... 255, default 128]
Sharpness: 128 [0 ... 255, default 128]
Adjust
Mirror: None [defaultNone]
Lighting Attribute
Frequency: 50Hz 60Hz
White Balance: Automatic [default Automatic]
Slow Shutter: enable
target: 1/8 frame per second [default 1/8]
disable
Exposure Mode: Auto
Manual
target: 50 [0 ... 255, default 128]
Gain
AGC: enable
Max Gain: 30 dB [default 30]
disable
target: 7 [0 ... 255, default 7]
PREVIEW
Apply
Reset
v1.07.09
You can control the exposure of camera by selecting 'auto' or 'manual' to improve the image quality.
Auto : It controls the exposure automatically.
Manual : You can improve the quality of image by configuring the target value of exposure. Higher figure means better image quality. The quality is optimized by user's configuration of shutter speed and AGC.
You can slow the shutter speed by setting target value. This is used when it is too dark and need to get more of light by slowing the shutter speed.
-Based on full 30 fps-
1/2 : 15 fps (every 66ms)
1/4: 7.5 fps (every 133ms)
1/8 : 3.75 fps (every 266ms)

Event Configuration

Only Video, Motion Detection, VCA, Network, and Health are supported for the event publisher (DI/DO are not supported). Refer to section 4.4. Event Configuration for the explanation of the setting.



USB/SD Storage

USB/SD ports are NOT supported.

USB Wireless LAN

USB port for Wireless LAN is NOT supported.

DI/DO Control

DI/DO is NOT supported.

UART Setting for serial device

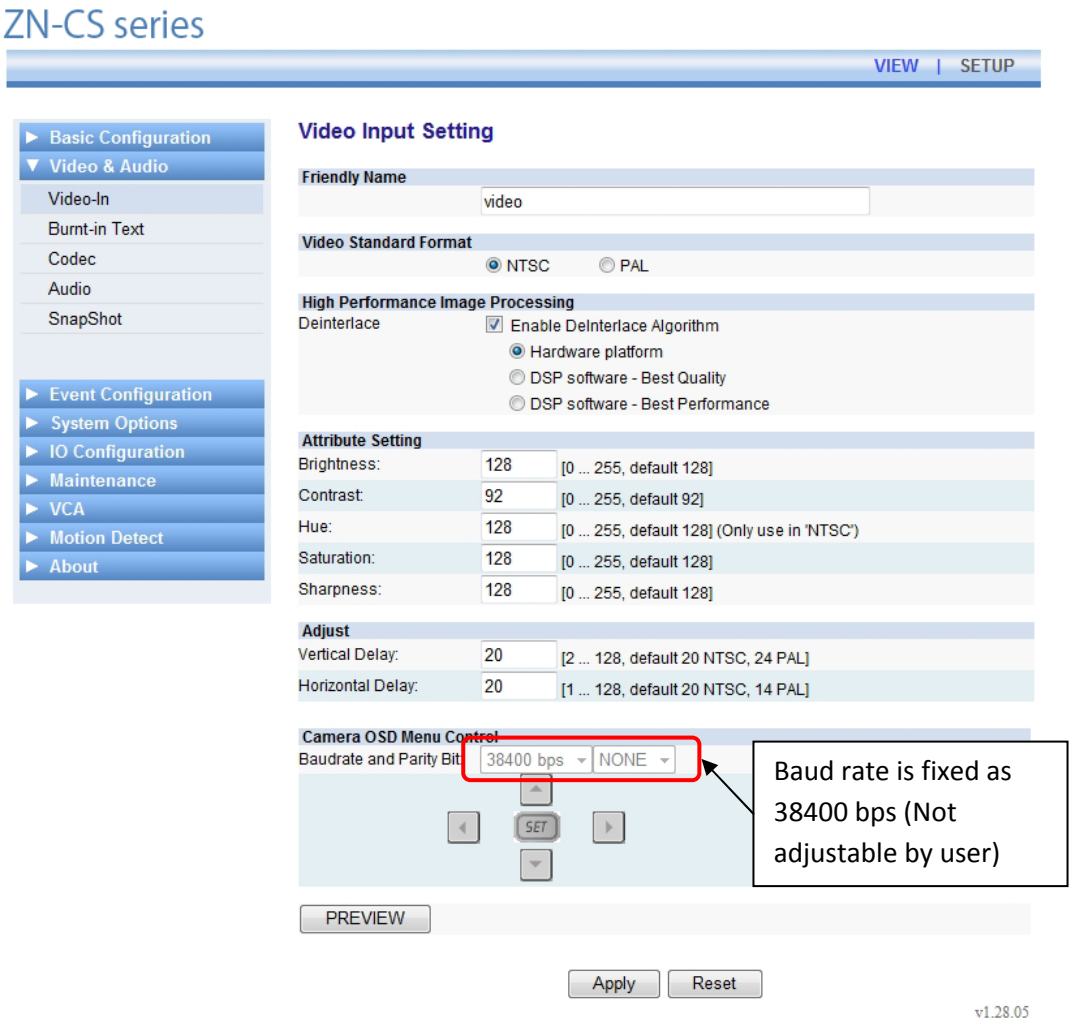
Serial communication available for users is NOT supported.

6.5. ZN-CS series H.264 Network camera

Video Input

Camera OSD Menu Control

For OSD menu operation, refer to the 'ZN-CS series H.264 Network camera OSD Menu Control Manual' in the SDK (\DOC).



Refer to the section 4.3. VIDEO & AUDIO for more information about settings other than Camera OS menu Control.

Event Configuration

Refer to the section 4.4. EVENT CONFIGURATION for the explanation of the setting.

USB/SD Storage

Refer to the section 4.5. SYSTEM OPTION for the explanation of the setting.

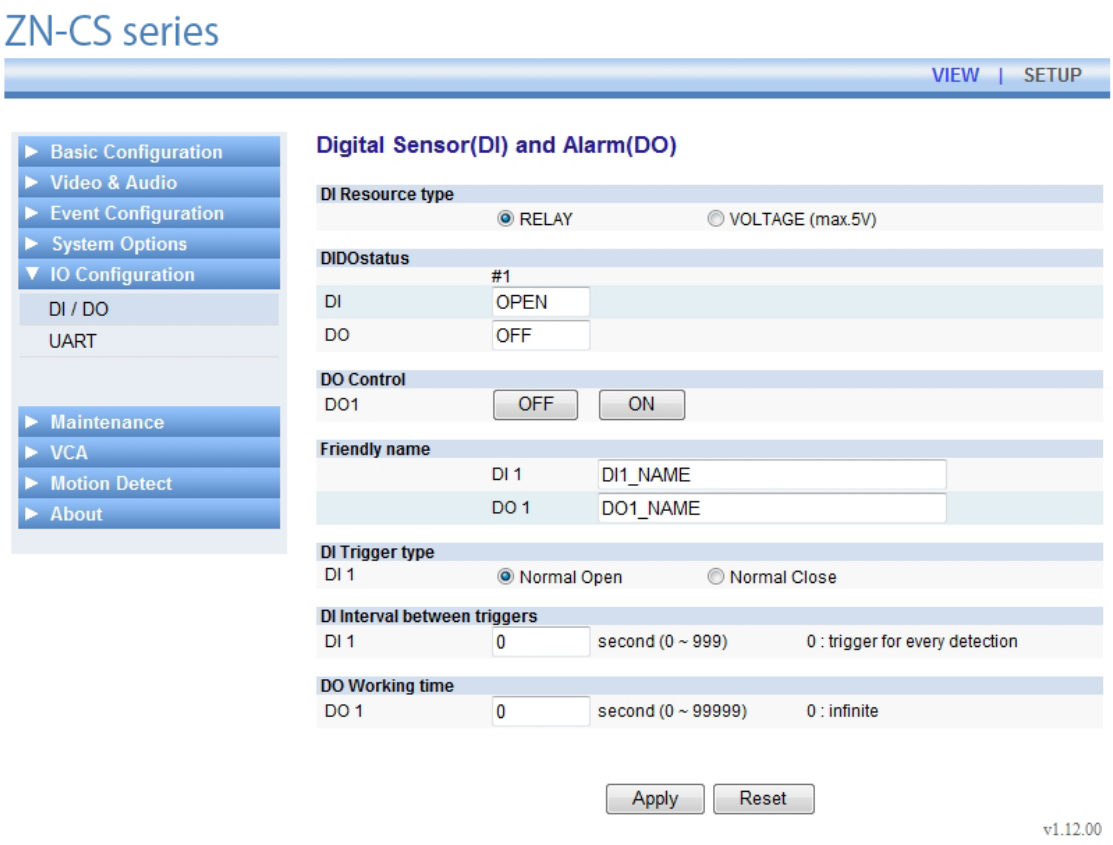
USB Wireless LAN

Refer to the section 4.5. SYSTEM OPTION for the explanation of the setting.

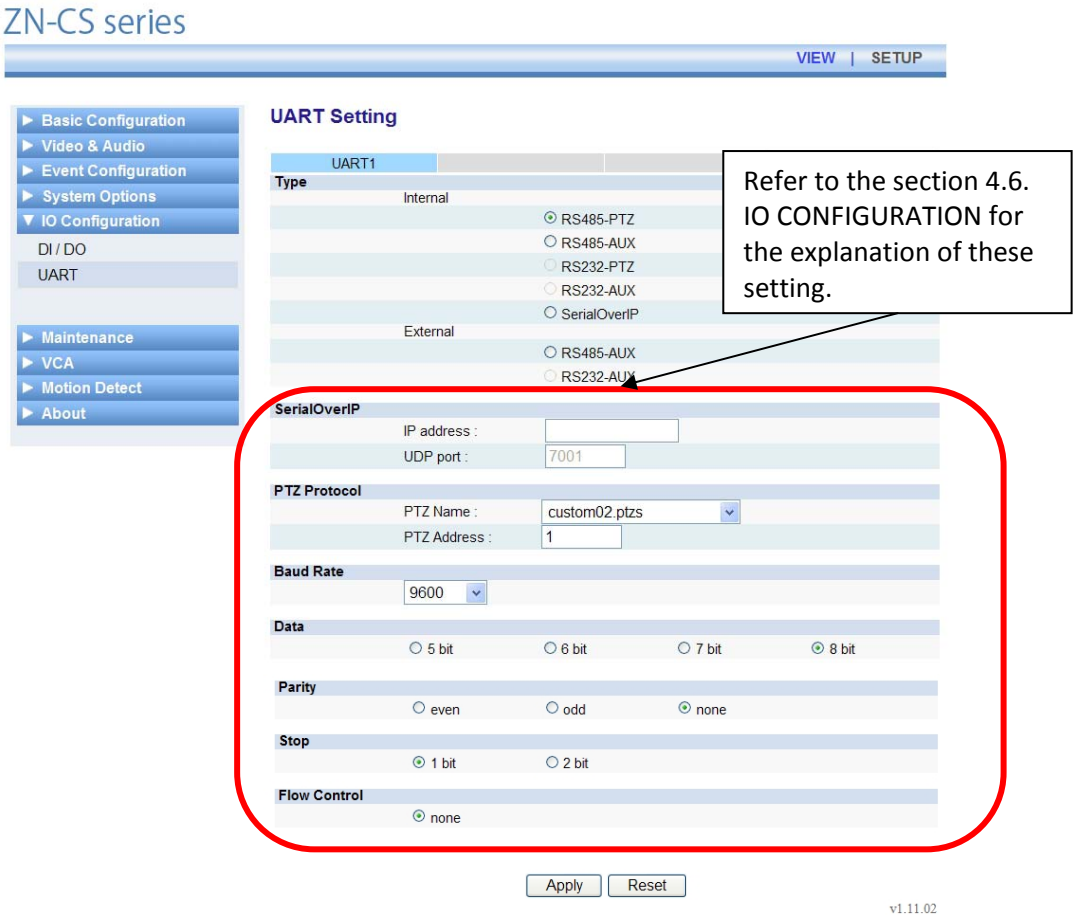
DI/DO Control of ZN-CS series H.264 Network camera

The number of supported DI and DO
DI : #1
DO : #1

Refer to the section 4.6. IO CONFIGURATION for more explanation of the setting.



UART Setting for serial device of ZN-CS series H.264 Network camera



UART0 : Reserved for the internal debugging purpose with RS232C.
UART1 : RS485 port
UART2 : Reserved for the communication of camera OSD control

IMPORTANT : Only UART1 is available for users but UART0 and UART2 are reserved for internal communication purpose which are not opened to users.

NOTE : The UART setting depends on the hardware version and firmware version of your device. The setting configuration of above is based on the *hw v1.3 / firmware v1.00.06*. You can check out the version information at [Setup] – [About] – [Version] tab of the webpage.

NOTE : If you want the RS232C, please use the 485-232 converter.

6.6. ZN-DT350 series H.264 Network dome camera

Camera OSD Menu Control

For OSD menu operation, independent manual is provided.
Refer to the 'ZN-DT350 series H.264 Network dome camera OSD Menu Control Manual' in the SDK (\DOC)

Event Configuration

Refer to the section 4.4. EVENT CONFIGURATION for the explanation of the setting.

USB/SD Storage

Only SD supported.

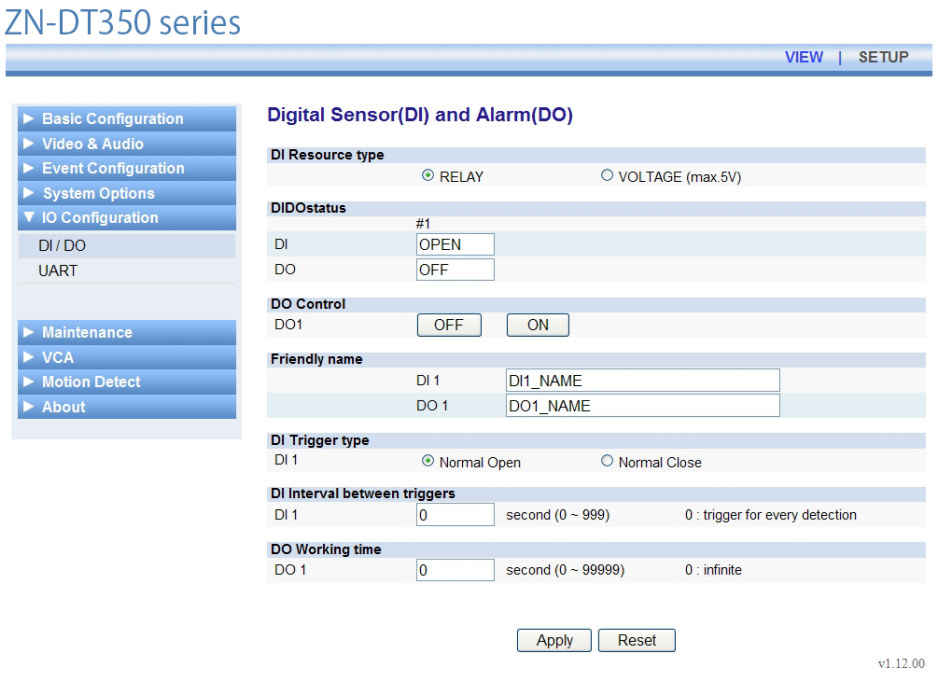
USB Wireless LAN

USB port for Wireless LAN is NOT supported.

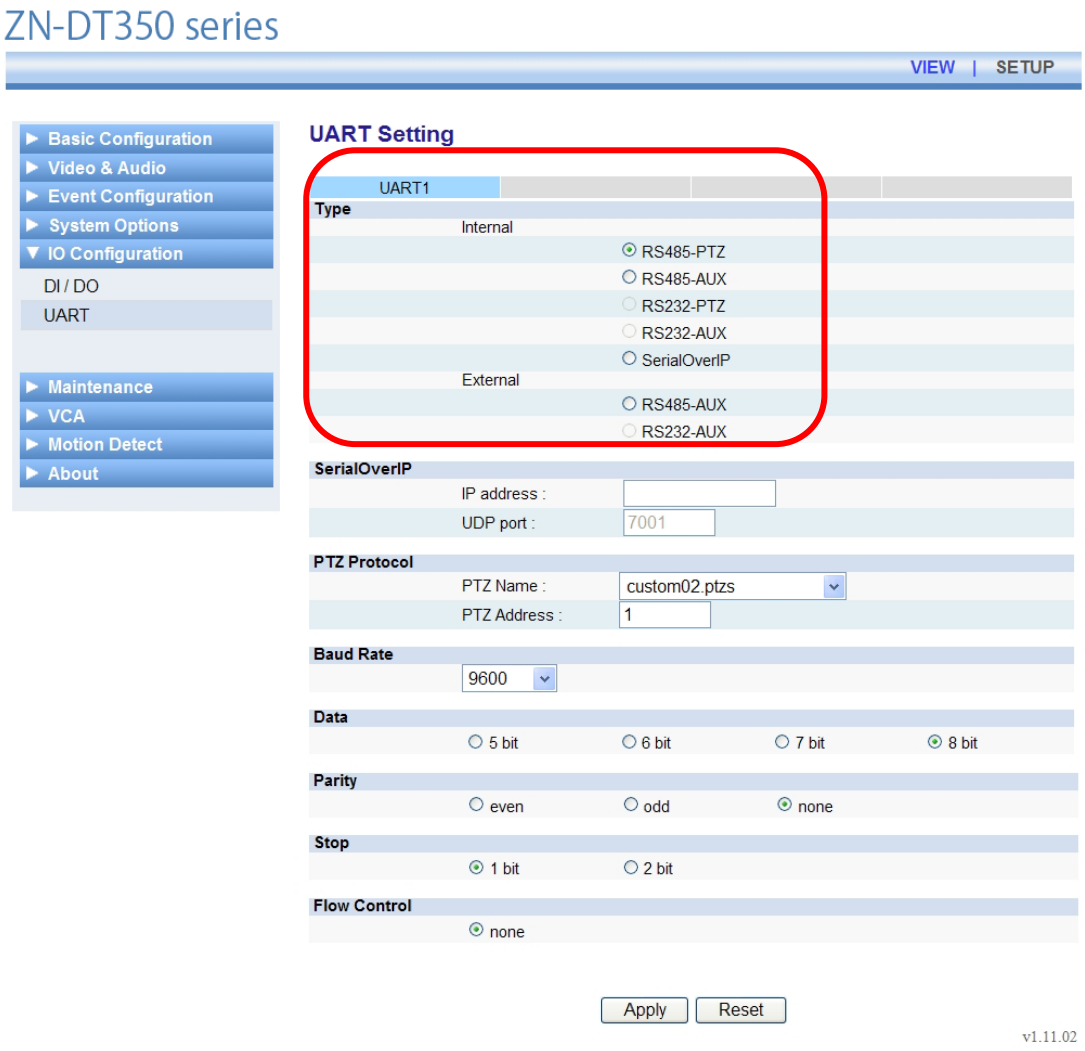
DI/DO Control of ZN-DT350 series H.264 Network dome camera

The number of supported DI and DO
DI : #1
DO : #1

Refer to the section 4.6. IO CONFIGURATION for the explanation about the setting.



UART Setting for serial device



UART0 : Reserved for the internal debugging purpose with RS232C.
UART1 : RS485 port
UART2 : Reserved for the communication of camera OSD control

IMPORTANT : Only UART1 is available for users but UART0 and UART2 are reserved for internal communication purpose which are not opened to users.

NOTE : The UART setting depends on the hardware version and firmware version of your device. The setting configuration of above is based on the *hw v1.3 / firmware v1.00.06*. You can check out the version information at [Setup] – [About] – [Version] tab of the webpage.

NOTE : If you want the RS232C, please use the 485-232 converter.